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WESTERN AUSTRALIAN

YEAR-BOOK

FOR

1902-04.

(THIRTEENTH EDITION.)

BY

MALCOLM A. C. FRASER,

F.R.G.S.; F.S.S.; F.R.C. Inst.,

GOVERNMENT STATISTICIAN AND REGISTRAR GENERAL
OF WESTERN AUSTRALIA.

PERTH:
BY AUTHORITY: A. CURTIS, ACTING GOVERNMENT PRINTER.
1906.

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PREFACE.

The plan adopted in this issue of the Year-Book, of publishing its several parts as separate Advance Sheets immediately upon their completion, has apparently to a certain extent proved successful in solving the difficulty hitherto experienced, namely, that of placing early before the public, both within and without Western Australia, particulars concerning its resources and progress as complete and comprehensive as are contained in the present official record of this rapidly growing State.

By means of the method now employed, information especially required is early available, and can, in pamphlet form, be placed in the hands of those wanting it with the least possible delay, whilst the completed publication should serve as a State hand-book for reference purposes, both for those who already know, and those who wish to become acquainted with, the numerous and varied resources of Western Australia.

I have again to express my thanks to the various heads of Government Departments and other contributors for the kind and courteous assistance they have in every instance given me, especially in the compilation of the many chapters which, from their nature, could not possibly be satisfactorily dealt with in this office; and I also take this opportunity of acknowledging my indebtedness to those who have kindly lent, for the numerous illustrations which appear in this edition, blocks or pictures.

Amongst new articles contributed, special mention should be made of an extremely interesting and valuable one on the Fremantle Harbour Trust, supplied by its Secretary.

MALCOLM A. C. FRASER,

Government Statistician and Registrar General.

Perth, 6th February, 1906.

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ERRATA.

Page 1, par. 2, line 1, *for* "Mandaña" *read* "Mendaña."

Page 149, lines 21 to 25, both inclusive, delete.

Page 221, line 28, add: "The Government also grants members free passes over the Midland Railway."

Page 471, transfer last line to foot of page 470.

Page 633, over columns "Production" and "Average per acre," *for* "bushels" *read* "tons."

Page 702, column 1903, "Canada," *for* "40,181" *read* "40,716"; "All other British Possessions," *for* "1,864" *read* "1,362"; "Total Imports from other British Possessions," *for* "151,970" *read* "152,003."

Page 703, column 1903, "All other Foreign Countries," *for* "34,351" *read* "34,318"; "Total Imports from Foreign Countries," *for* "1,314,061" *read* "1,314,028."

Page 705, last line, *for* "£10,271,511" *read* "£10,271,489."

Page 706, 10th line from foot of page, *for* "£10,271,511" *read* "£10,271,489."

Page 706, 9th line from foot of page, *for* "£3,599,031" *read* "£3,599,009."

Page 726, first table, "Raw gold, 1904," *for* "£3,943,908" *read* "£3,965,095."

Page 726, first table, "Total, 1904," *for* "£8,507,445" *read* "£8,528,632."

Page 1029, line 22, "and Armadale," delete.

Page 1030, line 1, *for* "81" *read* "82."

Page 1030, lines 6 and 7, between "Bally Bally" and "Belmont," add "Bedfordale."

Page 1172, "Year ended 30th June, 1905," first four columns should read: 4,018,933 | 16 9 8 | 4,145,688 | 17 0 1 |

Page 1176, "Year ended 30th June, 1905," 2nd column, *read* "1,639,526"; 3rd column, "64,161"; 4th column, "63,372."

Page 1251, 6th line and 15th line, *for* "2,095,426" *read* "2,152,114."

Page 1251, 7th line and 16th line, *for* "338,074" *read* "281,386."

The provisions of the Land Act and Land Regulations, as referred to in Part VII., "Land," have, since the completion of that part, undergone certain alterations. For the latest information on this subject, *see* "Land Selectors' Guide, 1906," which may be obtained free on application to the Department of Lands and Surveys, Perth, or any of the Land District Agencies.

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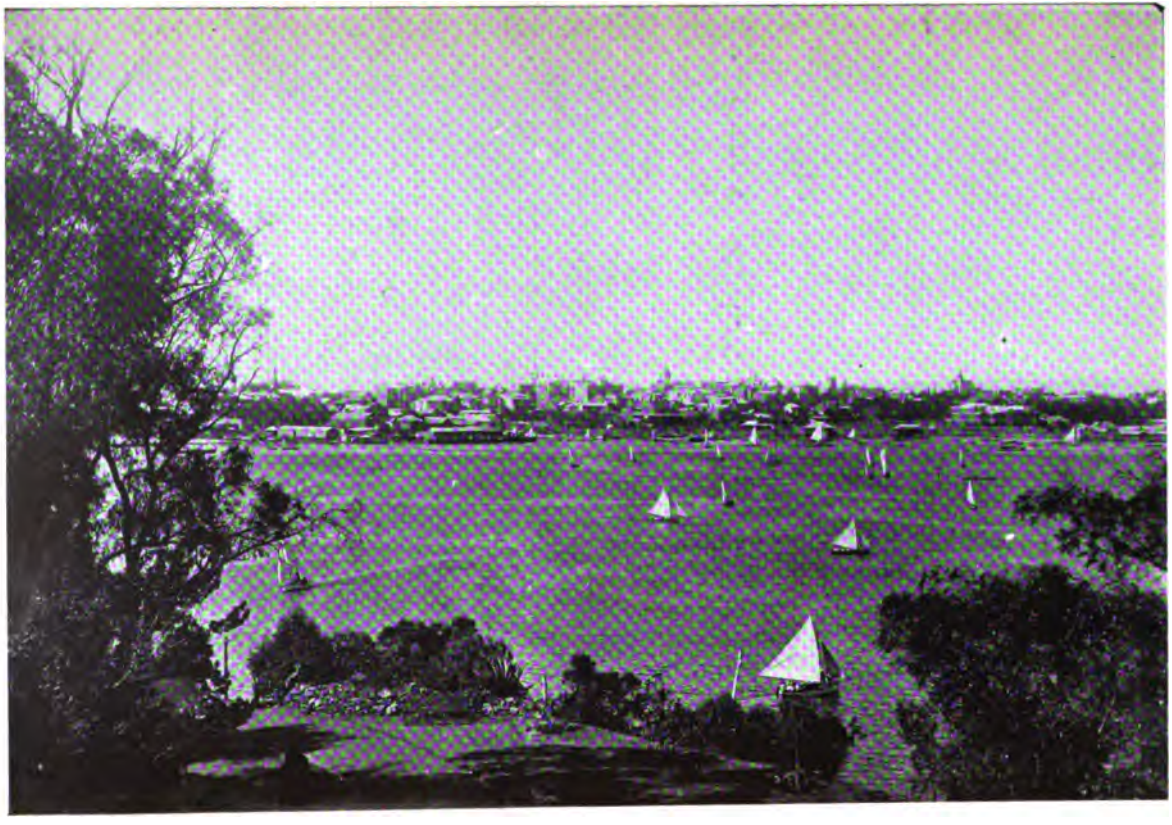

Perth, View of, from Lower Terrace, King's Park.

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WESTERN AUSTRALIAN YEAR-BOOK

FOR

1902-1904.

PART I.—HISTORY.

1.—DISCOVERY OF WESTERN AUSTRALIA.

TERRA AUSTRALIS INCOGNITA, or MAGELLANICA, the unknown Southern Continent, or Great Southern Land of ancient geographers and explorers, is said to have been first discovered by the Portuguese between the years 1511 and 1529, when some vessels belonging to that nation, engaged in the exploration of the Indian Seas, driven out of their course by currents or stress of weather, accidentally drifted on to the Australian coast. The authenticity of this account is, however, doubted.

In 1567 Alvaro de Mandaña sailed from Callao, in Peru, in search of the Continent believed to exist in the Southern Seas, but the only result of the expedition was the discovery of the Solomon Islands.

In 1595 Mendaña again left Peru in charge of an expedition equipped for the purpose of colonising the Solomon Islands, previously discovered, and chanced on the Marquesas and Santa Cruz Islands. He died on one of the latter, the expedition returning to Peru.

The spirit of enterprise displayed by the Portuguese served however, to encourage the Dutch East India Company, with their already established factories in Java and other parts of the Indian Archipelago, to researches in the direction of Australia. Their first object was New Guinea, where it was rumoured that gold was found. Frederick de Houtman, Governor of Amboyna (in the Moluccas), organised an expedition in 1605. Under his instructions the Dutch yacht "Duyfken" (*Little Dove*), Commander Willem Jansz, supercargo Jan Lodewijkszoon Rosingeyn, sailed from Bantam on the 18th November of that year, whence, after receiving further instructions from Jan Willemsz Verschoor, the company's President, she sailed to explore the Island of New Guinea. During March in the following year she coasted along that portion of *Terra Australis* lying in the Gulf of Carpentaria to the South-West of Cape York, as far as Cape "Keer Weer," or

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"Turn Back," her commander mistaking it for the West side of New Guinea, and thus, unconsciously, making the first authenticated discovery of the long sought-for Southern Continent. These seem to be all the particulars available as to the results of this expedition, and even they are doubtful, as the journal of Captain Jansz unfortunately appears to have been lost.*

On the 21st December, 1605, Pedro Fernandez de Quiros, who had been pilot under Mendaña and Luiz Vaz de Torres, left Callao with three Spanish vessels in search of the supposed *Tierra Austral*, and amongst others discovered one of the islands now called the New Hebrides, to which, supposing it to be the object of their search, they gave the name of *Austrialia del Espiritu Santo*. Torres, in the "Almirante," on the 11th June, 1606, found himself separated from De Quiros, and, ascertaining that the newly discovered land was only an island, continued his search Westward, passing, also unconsciously, in sight of the sought-for continent, through the Straits that now bear his name.

In 1611 certain ships going from the Netherlands to India, after doubling the Cape, followed another route than that usually adopted: they ran on an Eastern course, in about 36° Southern latitude, for a considerable time, and then tried to navigate to Java on a Northerly course. The commander, the subsequent Governor General Hendrik Brouwer, wrote to the Directors of the East India Company concerning "this fairway" in highly laudatory terms, as preferable to the usual course by Madagascar, which offered many dangers and objections. The new route was thenceforth prescribed to the Company's ships. As early as 1618 and 1620 the Company urged upon the Governor General of India the importance of following up the discoveries in the region of "The Southland." Jan Pieterszoon Coen, who was then directing the affairs of the Company in India, gave instructions, on the 29th September, 1622, for the ships "Haring" (*Herring*) and "Hazewind" (*Greyhound*) to sail, "destined for the further discovery of the Southland." The commanders were "specially to inquire what minerals, such as gold, silver, tin, iron, lead, and copper, what precious stones, pearls, vegetables, animals, and fruit these lands" produced; and the countries discovered were "to be taken possession of." Jan Carstensz was to be in command. The ships, however, for some reason did not sail on their ordained expedition. The enterprise of the Company probably found its boldest expression in that eminent navigator, Van Diemen; but in his time the directors of the Company began to slacken in their zeal for exploration, finding the expenses too great; and gradually the idea of further colonial expansion was abandoned, thus leaving Australia to be colonised by others. At the close of the 17th century Nicolaas Corneliszoon Witsen,

* Dr. W. G. C. Byvanck, the Chief Librarian of the Royal Library at The Hague, who has kindly furnished authentic information with regard to the early Dutch voyages to Western Australia, quotes De Jonge, "Rise of the Dutch Dominion in East India," iii., 42-44, and Lants, also P. A. Leupe, "Voyages of the Dutch to New Holland" (in his "Treatise on the Naval Exploits of the Dutch"). Professor Dr. J. E. Heeres, of Leiden, in an abstract of valuable notes kindly made available for publication in the Year Book, gives a similar account.

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Dirk Hartogs' Plate, 1616.

1616

DEN 25 OCTOBER IS HIER
AEN GECOMEN HET SCHIP DE EENDRACHT
VAN AMSTERDAM DE OPPER KOPMAN CIL-
LES MIEBAIS VAN LVCK SCHIPPER DIRCK HATICHS
VAN AMSTERDAM DE 27 DITO TE SEILGECHN NA BAN-
TVM DE ONDER COEPMAN JANS TINS DE OPPER STVIER-
MAN PIETER EDOORES VAN BIL ANNO 1616 -

1697 DEN 4 FEBREVARY IS HIER AEN GEKOMEN HET SCHIP
DE GEELVINCK VOOR AMSTERDAM DEN COMANDER ENT SCHIP-
PER WILLEM DE VLAMINGH VAN VLIELANDT ADSISTENT JOAN-
NES BREMER VAN COPPENHAGEN OPPER STVIERMAN MICHIL
BLOEM VANT STICHT BREMEN DE HOECKER DE NYPTANGH
SCHIPPER GERRIT COLAART VAN AMSTERDAM ADSIST' THEO-
DORIS HEIRMANS VAN DITO OPPER STIERMAN GER-
RIT GERITSEN VAN BREMEN TE GALIOOT HET
WEESELTIE GESAGH HEBBER CORNELIS DE VLAMINGH
VAN VLIELANDT ST VIRMAN COERT GERRITSEN
VAN BREMEN EN VAN HIER GEZEYLT MET ONSE
VLOT DEN VOORTSHET ZVYDLANDT
VERDER TE ONDERSOECREN ENGE DIS-
TINEERT VOOR BATAVIA -
#12

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aminf's Plate. 1697.

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Burgomaster of Amsterdam and General Director of the East India Company, with a special view to the enlargement of geographical knowledge, took a diligent part in the preparations for the voyage of skipper De Vlaming. A few years later he bitterly complained of the indifference of many of his countrymen in those days, who did not "care about curious learning from India," but "money only." As Professor Heeres says: "The times of Van Diemen had failed to return; the spirit by which he was imbued no longer presided over the debates on colonial matters." *

In 1616 Dirk Hartogs (Hartochsz), in command of the Dutch vessel "Eendragt," or "Eendracht" (*Concord*), supercargo Cornelis Buysero, outward bound from Holland to the Indies, entered Shark Bay, and gave his name to the island upon the Western side of the Bay. The name "Dor Eylandt," or "Dorre Eylandt" (*Barren Island*) was then, or subsequently, given to the largest island at the entrance of the Bay. A tin plate nailed to a post erected at the North end of Dirk Hartogs Island remained for many years a memento of his visit. His countryman, Willem De Vlaming, who visited the island in 1697, relates that he found the plate on the 4th of February of that year, and, taking it away with him, entrusted it to the Governor General at Batavia, who forwarded it to the Board of Seventeen Directors of the Dutch East India Company in Holland, the President of which was, at that time, Burgomaster Nicolaas Witsen. Vlaming gave a rendering of the inscription, which, translated from the Dutch, runs as follows:—

> ANNO 1616, the 25th of October.—Arrived here the ship "Eendracht," of Amsterdam; the first merchant Gillis Miebais of Liege. Dirck Hartogs, of Amsterdam, Captain. 27th Do. - Sailed for Bantam.

On the lower part, cut with a knife, were to be read in Dutch the words:

> The Under Merchant Jan Steyn, Upper Steersman, Pieter Ledoecker of Bil. A° 1616.

Such, at least, was the wording of the duplicate plate which he caused to be substituted for the one removed.† The original plate of Dirk Hartogs was discovered in 1902 by Mr. J. F. L. De Balbian Verster, in the "Rijks-Museum" (State Museum) at Amsterdam, and it was then seen that the latter part of the inscription thereon reads as follows:—

> The Under Merchant Jan Stins, Upper Steersman, Pieter Dockes of Bil. A° 1616.

Vlaming's inscription was seen by Captain Hamelin, of the French exploring vessel "Naturaliste," in 1801; but the plate had disappeared in January, 1822, when King caused a careful search to be made for it. This disappearance can be accounted for by a statement made by De Freycinet to the effect that he had removed it, and deposited it for safe keeping in the Museum of the French Institute, which fact is referred to in the minutes of the Society,

* "The Part borne by the Dutch in the discovery of Australia, 1606-1765," by Professor J. E. Heeres, LL.D.

† Dr. Byvanck refers to Major's "Introduction" to "Early Voyages to *Terra Australis*," p. 32.

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dated 23rd March, 1821. In spite, however, of this statement, a careful search very recently made by the Secretary* of the Institute has failed to discover its present whereabouts.

Dirk Hartogs examined the coastline between South latitude 26° 30′ and 23°, and called the intervening country "Eendracht's Land."

On the 11th May, 1618, the ship "Zeewolf" (*Seawolf*), from the Netherlands to India, supercargo Pieter Dirkszoon, skipper Haevik Claeszoon Van Hillegom, sighted land in Southern latitude 21° 20′, about "a thousand miles" (German sea-miles) East of Africa.

In July of the same year a Dutch vessel called "Mauritius," supercargo Willem Jansz, skipper Lenaert Jacobsz, touched near the North-West Cape, and discovered the "Willems-rivier" (probably the Ashburton), in lat. 21° 45′ South.

In 1619 a fleet of eleven vessels, under the command of Frederik de Houtman, in the ship "Dordrecht," discovered, on 29th July of that year, a reef lying off this coast, to which the name of "Frederik Houtman's Abrolhos" was given.† It consists of a cluster of rocky islets and outlying reefs about 45 miles to the West and North-West of Champion Bay. The term Abrolhos is a contraction of the Portuguese words "abri vossos olhos," meaning in English "Open your eyes," and was applied by the Portuguese to outlying coastal dangers. On board one of the ships of Houtman's fleet, the "Amsterdam," was Jacob D'edel, the first merchant (supercargo), and it was after him that the district between Shark Bay and Champion Bay was named "Edel's Land."

In 1622 the Dutch vessel "Leeuwin" (*Lioness*) rounded the Cape at the South-West corner of the Continent, which now bears her name, and examined the shore as far as what subsequently became known as King George III. Sound; this portion of the Continent being subsequently known as Leeuwin's or Lyon's Land.

On the 5th July, 1622, a boat arrived at Batavia with ten men, forming part of the crew of an English ship, named the "Trial," and on the 8th her pinnace arrived with 36 men. They stated that they had lost and abandoned their ship with 97 men and the cargo, on certain rocks situated in latitude 20° 10′ South, in the longitude of the Western extremity of Java. These rocks were near a number of broken islands lying very far apart. They said that they had met with this accident through following the course of the Dutch ships. The yacht "Hazewind" was selected to discover those lands, but never started. It is probable that the shipwrecked English sailors were considerably out in their statement as to the longitude of the "Trial" or "Tryal" rocks, which have since been located on the South-Western part of the Monte Bello Reef, extending three or four miles North and South, the central and largest rock lying North, distant 5¼ miles, from the North extreme of Barrow Island.

* Dr. Alfred Grandidier, who has kindly revised the portions of this historical abstract, referring to the French voyages.

† Dr. Byvanck refers to Major's "Introduction," p. 86, and the strictures on the passage given by P. A. Leupe, "Treatise on the Naval Exploits of the Dutch," Vol. xxvii. 1, Sec. 2, p. 32.

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On the 22nd July, 162[illegible] [illegible] (*The Arms of Hoorn*), having [illegible] December, 1621, arrived at [illegible] in extreme peril near Eendracht[illegible].

On the 21st July, 162[illegible] [illegible] Klaas Hermansz, sighted Eendracht[illegible] the command of Daniel Jans[illegible] on the 28th April, 1626.

On the 16th November, 162[illegible] [illegible] *dove*) sailed from the Texel [illegible] where she arrived on the 21st Jun[illegible] named the Turtledove Shoal.

In January of the same year [illegible] Carstensz, from Amboyna, in the [illegible] discovered Arnhem Land (Aarnem[illegible] Northern district of South Australia [illegible] Dirck Melisz, having been killed [illegible] mate of the "Pera," Willem Jousten [illegible] as his successor. "In this discover[illegible] water and barren coasts; islands [illegible] divers cruel, poor, and brutal [illegible] the company." This exploration [illegible] Gerrit Thomaszoon Pool, who was [illegible] same spot, and Pieter Pieterszoon [illegible] and "Wezel."

On the 16th according to I[illegible] chart, of January, 1627, the "Gro[illegible] skipper François Thyssen, having [illegible] Ambassador to the Court of Japan [illegible] Formosa, sighted the South coast [illegible] the present Cape Leeuwin, and [illegible] Southern coastline for 1000 miles [illegible] name of Nuyts Land to the country [illegible] as the Great Australian Bight. It [illegible] islands St. François and St. Peter [illegible] coast of South Australia, were named.

On the 22nd July, 1627, the G[illegible] Jan Pieterszoon Coen, sailed from [illegible] "Galias," "Utrecht," and "Texel." [illegible] her rudder in a gale on the night [illegible] company from the other ships, and [illegible] nearly wrecked on the coast of Eendr[illegible].

On the 17th September of the [illegible] Van Hoorn," supercargo J. Van R[illegible] land, near Dirk Hartogs Roadstead [illegible] made during each of these voyages [illegible] became more accurately defined on the [illegible]

In 1628 an expedition was equ[illegible] the East Indies. It had originally [illegible]

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should consist of eleven vessels, but three of them, being ready to sail before the others, left Texel on the 28th of October, under the command of Commodore Francis Pelsart. The "Batavia," Pelsart's ship, driven out of her course during a severe storm, was separated from the other two, and having lost her reckoning, struck, on the night of the 4th June, 1629, on one of the islands of Houtman's Abrolhos, becoming a total wreck. The greater part of the crew and passengers, however, safely reached the shore. After vainly searching for water on the adjacent islands, and the mainland opposite, Pelsart, with eight men, eventually made his way in one of the vessel's boats to Batavia, where he arrived on the 5th July; here he obtained the use of a frigate called the "Sardam," in which he returned to rescue the remainder of the castaways. On his arrival he found that during his absence a portion of the crew, under the supercargo, Jerome Cornelis, had mutinied, and massacred the greater number of the passengers, intending to seize any vessel that might chance to come near the islands, and then turn pirates. Pelsart, being forewarned of this intention by some of those who had escaped from the mutineers to another island, easily captured the ringleaders, who were promptly tried and as quickly executed, two of their number being marooned on the mainland near Champion Bay. On the 28th October, 1629, the chief part of the silver treasure having been recovered from the wrecked vessel, the "Sardam," with the survivors on board, sailed for Batavia. Pelsart's Journal mentions the so-called "Jacob Remessens," "Remens," or "Rommer" River, in latitude 22° 17′. As the modern maps show no river of any size at that point, it may perhaps be surmised that Exmouth Gulf was mistaken for the mouth of a river. It is evident that the name "Jacob Remessens Rivier" had been given in or before 1628.

In the same year, 1628, Captain Gerrit Fredericsz De Wit, of the homeward bound "Vianen," ran aground off the land which is now comprised in the North-West and Kimberley Districts, and sailing along the coast for about 50 miles, gave his name to that part of Australia.

In 1629 the West coast of Australia was touched at by Dutch vessels in the neighbourhood of Dirk Hartogs Roadstead.

In 1632 the Trials were passed by Dutch ships on the outward voyage, but no fresh information of importance was gained.

In 1635, on the 25th May, the ship "Amsterdam," under Commander Wollebrand Geleynszoon de Jongh, and skipper Pieter Dirksz, sighted the "Southland" in the neighbourhood of Shark Bay.

In 1644 Abel Janszoon Tasman, the celebrated Dutch explorer, and Frans Jacobszoon Visscher, with the yachts "Limmen," "Zeemeeuw" (*Sea-mew*) and "De Brak" (*The Hound*) during a second expedition in these seas, examined the country which was afterwards called Tasman Land, to that bordering on the extreme North-Western coast line of the Continent, from Arnhem Land, or what is now the Northern Territory of South Australia, to Exmouth Gulf, in latitude 22° S. in this Colony. This comprised the country

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previously discovered, and named by De Wit, as well as part of Eendracht's Land—namely, the present districts of Kimberley and the North-West. Tasman appears to have landed in Carnôt Bay and also in what was subsequently called Roebuck Bay, and on some of the islands in Dampier's Archipelago. He gave the name of *Nova Hollandia* or *New Holland* to the Western half of the Continent of Australia. The name New Holland was applied by the Dutch only to the parts of the Continent lying Westward of a meridian line, passing through Arnhem's Land on the North and near the isles of St. Francis and St. Peter to the South. All that to the Eastward, including the shores of the Gulf of Carpentaria, still remained as *Terra Australis*. This appears from a chart published by Thevenot in 1663; which, he says, "was originally taken from that done in inlaid work upon the pavement of the new Stadt-House at Amsterdam."

In the present State of Western Australia are included all the lands on the South, West, and North-West coasts then known to the Dutch as "The Great Known South Land," as distinguished from "The Unknown Land," which comprised the remainder of the Continent.

An exploratory voyage to the West coast of New Holland was made in 1648 by the ship "Leeuwerik" *(Lark)*, commanded by Jan Janszoon Zeeuw.

In 1656, on the 28th April, the "De Vergulde Draeck" *(The Gilt Dragon)*, commanded by Pieter Albertsz, which had left Texel on the 4th October, 1655, was wrecked at night on a reef on the West Coast in latitude 30° 40′, and 118 lives were lost. Leaving 68 of the survivors of the wreck behind on the mainland to protect, if possible, the treasure (78,600 guilders) and merchandise, which comprised the cargo of the vessel, one of the vessel's boats made for Batavia, which it duly reached; and the vessels "Witte Valck" *(White Falcon)* and "Goede Hoop" *(Good Hope)* were at once despatched to the rescue of the castaways and the property, unfortunately, however, without success.

In 1657 a further search made by the "Vinck" *(Finch)*, whilst on a voyage from the Cape to Batavia, also proved fruitless.

In 1658, on the 1st January, the vessels "Waekende Boey" *(The Watch Buoy)*, commanded by Samuel Volckertszoon, and the "Emeloort," Captain Aucke Pieterszoon Jonck, left Batavia on a similar errand, which was equally abortive. Improved charts of the West coast of Australia were, however, the result of this expedition. During the search, one of the boats of the "Waekende Boey," being accidentally separated from her during bad weather, was thought by those on board to have been lost, and was consequently abandoned; part of its crew, however, after almost incredible sufferings from exposure, hunger, and thirst, managed to reach Java in safety.

In the same year the ship "Elburg," commanded by Jacob Pieterszoon Peereboom, brought in further reports about the South-

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West coast, or "Land van de Leeuwin," where she had been at anchor "in latitude 33° 14′ South under a projecting point," probably in Geographe Bay, and where some of her crew had been ashore.

In February, 1678, the ship "De Vliegende Zwaan" *(The Flying Swan)*, commanded by Jan Van der Wall, coasted the North-West of Australia on her voyage from Ternate to Batavia.

In 1688, on the 5th January, the first Englishman landed on the coast of Western Australia, in the person of William Dampier, who, by the publication of further authentic information regarding "New Holland," supplemented the accounts of Tasman's discoveries made in 1642-3, which had been already previously made known, in 1671 in the diary kept by the surgeon of Tasman's vessel, and subsequently in Tasman's own notes in 1674. Dampier appears to have left Brazil as supercargo in a small vessel called the "Cygnet," commanded by a friend of his named Swan, and intended for the trade with South America; the crew, however, mutinied and became buccaneers, and eventually Captain Swan and about forty of those who remained faithful to him were abandoned to their fate on one of the Philippine Islands. Dampier remained in the vessel, which, after her extended voyage, appears to have required over-hauling. Their occupation rendering an unfrequented spot desirable for the purpose, the buccaneers steered for the coast of New Holland, and on the 4th of January, 1688, anchored in a bay in the North-Western corner of King Sound, in the present West Kimberley District, now known as Cygnet Bay, where they beached the vessel and executed the necessary repairs. During their stay here (and they did not leave until the 12th March) Dampier, who does not seem to have found the society of the buccaneers or their mode of life congenial, made a careful exploration of the surrounding country. He succeeded in leaving the vessel at the Nicobar Islands, from which he reached Sumatra in a canoe, and eventually, after many adventures, arrived in England. It has been pointed out as a singular circumstance that Cygnet Bay, where the "Cygnet" was beached in 1688, is the one spot out of the whole West Australian coast now selected by the W.A.S.N. Co's. s.s. "Australind" and other steamers for scraping and cleaning their bottoms; and it certainly seems strange, unless the place was previously known, that the "Cygnet" should accidentally have hit upon the one place on the whole coast best suited for the purpose.

In 1696 Commander Willem de Vlaming, in a vessel called the "Geelvinck" *(Yellow Bunting)*, convoying two other vessels, the "Nyptangh" *(Pincher)*, commanded by Captain Gerrit Collaert, and "Weseltje" *(Weazel)* under Commander Cornelis de Vlaming, son of the leader of the expedition, was ordered by the Dutch East India Company to carefully examine the Western coast of New Holland for traces of a vessel named the "Ridderschap Van Holland" *(Chamber of Knights of Holland)*, which had left Holland for the Dutch colonies two years previously (1694)* and had never reached its destination. On the morning of Christmas

* Leupe, p. 360.

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Day, 1696, land was sighted, and on the 29th the ships anchored off the island of Rottnest, which the next day they explored, giving it the name "Rottenest" from the abundance of rats' (wallabies) nests found upon it. On the morning of the 5th January, Vlaming landed on the mainland, probably somewhere about what is now called Cottesloe Beach, with a party of eighty-six men, fully armed, and marching Eastwards, came to what is described as "a large basin of brackish water, which we afterwards found was a river." On the banks of this they found a hut "of a worse description than that of a Hottentot," also footprints and other evidences of the inhabitants, of whom, however, they were unable to catch a glimpse. On the following day the party divided into three, and went in different directions—one North, one South, and the third four miles further East. On the 9th the ships were brought in and anchored close off the mouth of the river, which Vlaming himself is said to have explored for a distance of fourteen or sixteen leagues. It is mentioned that he caught some smelts, whilst on the surface of the water were seen numerous black swans. Of this hitherto unknown prodigy, the fabulous black swan, Juvenal's "*Rara avis in terris nigroque simillima cygno,*" Vlaming captured several specimens, three of which were taken alive to Batavia. The river was named by Vlaming the Swan River *(Swaenerevier)*, and on the 13th January, having, as it is reported, found "neither good country nor seen anything worthy of note," the expedition proceeded slowly Northwards, examining the shore carefully with the boats for traces of the lost ship, and occasionally landing and making short excursions inland. On the 4th February Shark Bay was reached, and carefully explored. The tin plate of Dirk Hartogs was discovered, and, leaving a somewhat similar memorial of their own visit, the ships, on the 12th February, proceeded as far as the North-West Cape, from which, on the 21st of the same month, they steered a direct course to Batavia. Burgomaster Nicolaas Witsen complained that Vlaming, being addicted to drink, did not make such a thorough exploration of the country as he was instructed to do.

In 1699 Dampier—who, since his arrival in England, had published accounts of his previous adventures and discoveries in New Holland—was sent by William III. in the "Roebuck," under an Admiralty Commission, to make further explorations on the North-West coast of that country, and to solve, if possible, the question as to whether it was a continent or, as was then generally supposed, only a succession of islands. On the 1st August, 1699, he entered and named Shark Bay, and here he spent eight days in a fruitless search for water. Frequent further attempts for a like purpose, as he proceeded slowly Northward up the coast, were also of no avail, and only once was water obtained in a sufficient quantity to replenish his supply. So greatly disgusted was he with the extreme sterility and waterless aspect of the coastal country—he never appears to have explored any distance inland—that he abandoned the object of his mission, and proceeded straight to New Guinea. His unfavourable comments on the barren appearance of

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the land, and its wretched poverty-stricken inhabitants—whom he describes as "the miserablest people in the world"—militated strongly against further investigation being made, and from that time to 1770—when Cook, landing at Botany Bay, discovered and took possession of the more fertile regions of the Eastern coast—Australian exploration, so far at all events as England was concerned, appears to have been neglected. During this voyage Dampier discovered and roughly charted the Dampier Archipelago, and added much to the knowledge of the habits and customs of the aborigines and the natural history of the country. He described the kangaroo as "a strange creature like a racoon, which used only its hind legs, and, instead of walking, advanced by great bounds or leaps, of twelve or fifteen feet at a time."

With regard to the early history of the gold discoveries in this Colony, a curious mistake has crept in and been perpetuated from time to time in both official and private publications. It is stated that Dampier, a *Dutch* buccaneer, discovered gold on the North-West coast in 1688, and that on account of this discovery the Dutch charts marked this region *Provincia Aurifera.* In the first place, Dampier was not a Dutchman, but holds the proud distinction of being the first Englishman to land upon this coast; and, in the second place, no discovery of gold is anywhere mentioned by him in his account of his visit.

Mr. C. H. Coote, of the Department of Maps and Drawings in the British Museum, on being referred to for a solution of this question, replied as follows:—

"The legend of 'Beach,' *Provincia Aurifera,* does not occur on the Chart No. 90,056 (1), Dampier's, but amongst others on the map of the world by Pieter Plancius, the Dutch Geographer, 1594.

"The whole thing is a myth and a geographical blunder of the first half of the 16th century.

"You will find it on the Mercator's large chart of 1569, and on his earlier Earth's Globe of 1541.

"It arose from a misreading of Marco Polo's 'De Regionibus Orientalibus,' lib. 3, caput 2, inserted in Grynæus' (S.) 'Novus Orbis,' 1537 (Yule's 'Marco Polo,' Bk. 3, chap. 7, note 3); Beach or Bœach is a misprint for Locack (Lokok, the Chinese name for a former province of Lower Siam). This was ignorantly transferred by the early 16th century geographers to an imaginary great Southern Continent, the N.W. corner of which was supposed to be the two provinces of '*Beach, Provincia Aurifera*'—'*Maletur* regnum' with '*Lucack* regnum' repeated, in ignorance of the latter being the correct reading of *Beach.*"

In March, 1705, a small Dutch exploring squadron of three vessels, the "Vossenbosch" (*Foxwood*) under Maarten Van Delft, 'De Wayer" (*The Fan*) under Andries Rooseboom of Hamburg, and "Nieuw Holland" under Pieter Hendrikszoon of Hamburg, left Timor to explore the North-Western coast of New Holland, improved chart of Tasman's explorations was made.

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W. Alexander, del., from a sketch made on the spot by J. Sykes.

"A deserted Indian Village in King George III. Sound, New Holland," as seen by Vancouver, October, 1791.

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In 1711 a Dutch vessel named the "Zuytdorp" (*The South Village*) is said to have been wrecked on the Abrolhos Islands.

In 1727, on the 9th June, a Dutch vessel, commanded by Jan Steyns, supercargo, Jan Nebbens, the "Zeewyck," so named after a small fishing village in Holland, was wrecked on a reef off the Houtman Abrolhos, near the island to which, in 1840, Captain Stokes gave the name of Gun Island, from the fact of his finding a small brass three-pounder gun on it, with other relics of the wrecked vessel. Leaving the island on the 26th of March following, the remainder of the crew of the "Zeewyck," 82 in all, taking with them ten chests of treasure valued at 315,836 florins, reached Batavia in safety, on the 21st April, in a small boat built out of fragments of the wreck. A boat previously despatched in charge of the upper steersman, Pieter Langeweg, with a crew of eleven, was never again heard of. Numerous relics of the wreck have since been discovered, including pieces of ordnance, cannon balls, clay pipes, broken gin bottles, tumblers, wine glasses, iron lamps, snuff-box, etc., and several silver and copper coins bearing date 1720 and 1722.

Later in the eighteenth century, *inter alia* in 1755 and 1765, the West coast of Australia was again visited by Dutch ships, but the information gained by these visits is unimportant.

On the 18th March, 1772, Captain de St. Alouarn, in the flûte "Le Gros Ventre," anchored off Cape Leeuwin. After him the St. Alouarn Islands were named by d'Entrecasteaux, in December, 1792.

In 1791, on the 1st April, Captain George Vancouver, who had previously served as a midshipman under Cook, left Falmouth in H.M.S. "Discovery," accompanied by Captain Broughton, in H.M.S. "Chatham," on his way to North-West America. On September the 26th he arrived at Lyon's Land, off Chatham Island, situated close to the mainland off Point Nuyts, about one hundred miles South-East from Cape Leeuwin. Making a careful survey of the coast as he proceeded Eastward, on the night of 28th he anchored in a sound, to which he gave the name of King George the Third Sound. Landing on the 29th, the birthday of the then Princess Royal, after whom the inner harbour was named, he formally took possession "of the country from the land we saw North-Westward of Cape Chatham, so far as 'he' might explore its coasts." Here he remained until the 11th of October, being especially minute in his survey and examination of its outer harbour, and the adjacent country. Before leaving he deposited on Point Possession a bottle containing a parchment record of his visit, and a similar one on Seal Island. Continuing his voyage adverse weather greatly interfered with his exploration of the coast, which, at Termination Island, he eventually quitted for America. Archibald Menzies was naturalist to the expedition.

In 1792 a French expedition of two vessels, one "La Recherche," commanded by Antoine Raymond Joseph de Bruni Chevalier d'Entrecasteaux, and the other called "L'Espérance," Captain Huon de Kermadec, appeared on the South-Western coast,

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looking for traces of Count Jean François La Perouse, who, early in 1788, had left Sydney with the vessels "Boussole" and "Astrolabe," the latter commanded by Captain de Lange, and whose fate remained a mystery for nearly forty years, until 1825, when Captain Peter Dillon, of H.M.S. "Research," discovered remnants of the wrecks on Vanikoro, or Matlikoro, an island to the North-West of the New Hebrides, being the Southernmost of the Santa Cruz group. D'Entrecasteaux died on board his ship "La Recherche" on 20th July, 1793. Monsieur Labillardière was naturalist to the expedition.

In 1800, on 27th August, Chr. Dixon, ship "Elligood," was in Oyster Harbour, King George Sound. He probably removed Vancouver's bottle and record memorandum from Seal Island.

In 1801, on the 18th of July, Captain Matthew Flinders left Spithead in the "Investigator," the old "Xenophon," a sloop of 334 tons. He reached, on the 6th November, what he denominated Cape Leeuwin, as being the South-Western and most projecting "part of Leeuwin's Land," and commencing from there to King George III. Sound, where he arrived on the 9th December, he explored and charted Princess Royal Harbour, established friendly relations with the aboriginal inhabitants, and subsequently carefully examined the whole of the Southern coast of the Continent as far as Bass Straits. On board the "Investigator" was Robert Brown, the well-known naturalist; also William Westall, the famous painter; whilst John Franklin, who afterwards became Governor of Van Diemen's Land, and finally ended his career as the celebrated, but unfortunate, Arctic explorer, was one of her junior lieutenants. Flinders' search for Vancouver's record bottles was unsuccessful, but he discovered on the East side of Oyster Harbour a garden, and a piece of sheet copper inscribed "August 27, 1800. Chr. Dixon—ship Elligood." He also placed a record bottle on Seal Island. He left the Sound on the morning of the 5th January, 1802. Flinders readopted the original name of the Continent *Terra Australis*, "to include New South Wales, New Holland, and the adjacent isles, including that of Van Diemen."

In the British Patent to the first governor of New South Wales a meridian nearly corresponding to the ancient line of separation between *New Holland* and *Terra Australis* was made the Western limit of that colony, and was fixed at 135 E. longitude, "from which the British Territory extends Eastward to the islands of the Pacific or Great Ocean: its Northern limit is at Cape Yorke; and the extremity of the Southern Van Diemen's Land is its opposite boundary." In 1814, upon Captain Flinders' suggestion, the Continent received its name of Australia, "as being," as he said, "more agreeable to the ear, and an assimilation to the names of the other great portions of the earth."

In 1801-3 an exploration of the Western Australian coast was made by a French expedition of three vessels—the "Géographe," commanded by Commodore Nicolas Baudin; the "Naturaliste," by Captain Hamelin; and a small vessel of 30 tons, called the "Casuarina," under Lieutenant Louis Claude Desaulses de Freycinet. After a brief preliminary visit they proceeded to Timor

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W. Westall, A.R.A., F.L.S., pinxit.

"View from the South side of King George's Sound," as seen by Flinders, December, 1801.

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then, returning Southward, they anchored off the mouth of the Swan River (Rivière des Cygnes), which, between the 17th and 22nd June, 1801, they explored, probably to a short distance beyond the junction of the Helena River, intending to trace the source of the main stream. The leader, M. Heirisson (an *Enseigne de vaisseau*), was, however, reluctantly obliged to abandon the latter object, owing to their provisions running short. The name of one of their party being Moreau, the name Moreau Inlet was given to the Canning River, and that of their leader to the Heirisson Islands, on which the present Perth Causeway is constructed, where they first caught sight of the black swans. They appear to have climbed Mount Eliza, and describe the view obtained from there as particularly striking and beautiful. The change of soil about the present site of Guildford was noticed, and its fertility favourably commented upon. Eating, as previously Vlaming's men had also done, of the zamia-nut, which they described as a fruit like a chestnut, some of them did not fail to experience the sickness which it subsequently causes. At the point where they abandoned their up-stream journey, a distance, so it is stated, of about 20 leagues from its mouth, the river is described as being narrow, and only about seven or eight feet deep, the water being still salt. The vessels engaged on this expedition examined, so far as possible, the whole of the Western Australian coast, made a survey of Princess Royal Harbour, and took especially minute notes of the coast and land in the vicinity of the Swan River, and at Rottnest Island, where they landed, and the salt lakes of which they called *Etangs Douvaildaily*, whilst the species of wallaby they found there received the name of *péramèle à long nez*. Further they explored Shark Bay, and also some of the islands about Admiralty Gulf. M. Leschenault, the celebrated botanist, after whom the Leschenault Estuary, near Bunbury, and Cape Leschenault, near the Moore River, were called, was attached to this expedition, as was also M. François Peron, the zoologist, from whom Point Peron, South of Fremantle, received its name, whilst M. Bailly was the mineralogist. According to Captain King, "Péron and Lesueur in Baudin's voyage extended their inquiries chiefly among the branches of zoological research; but in that expedition each department of Natural History had its separate collector, and the names of Leschenault, de la Tour, Riedlé, Depuch, and Bailly will not be forgotten."

In 1818 Louis de Freycinet, this time as captain of the "Uranie," was again exploring off the Western and North-Western coasts. A minute geographical survey of Shark Bay, called by the French "la baie des Chiens Marins," was this time completed by M. Duperrey. An account of this voyage is given by Gaudichaud, the botanist, in his "Voyage Botanique autour du monde."

In 1818-22, Lieutenant Phillip Parker King, in the first place in the colonial cutter "Mermaid," 84 tons, and secondly in the brig "Bathurst," 170 tons, both vessels having been specially purchased for the purpose in Sydney, carried out a careful survey of the whole of the Western coast, commencing from King George III.

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Sound to Cambridge Gulf, and continuing along the Northern coast. King's instructions from the Admiralty were to explore the yet undiscovered coast of New Holland, and to complete, if possible, its circumnavigation, also to examine minutely all gulfs and openings in the Northern coast for any river on that part likely to lead to an interior navigation of the continent. Mr. Allan Cunningham was the botanical collector of the party, and one of the two masters' mates was Mr. John Septimus Roe, afterwards the first Surveyor General of this Colony. King's charts and sailing directions still form the basis of those in use at the present day. He died a Rear Admiral in 1855.

In 1820, the "San Antonio" (Captain Hemmans), an American trading brig, visited King George's Sound, probably in search of water, sometime in the mouth of December.

In June, 1825, the French vessels "Thétis" and "Espérance," commanded respectively by De Bougainville and du Camper, were cruising about the Southern coast; and, as it was at that time strongly suspected that France, recognising the maritime strength derived from the possession of suitable colonies, desired to found a settlement in Australia, Lieutenant-General Sir Ralph Darling, then Governor of New South Wales, sent Major Lockyer, of the 57th Regiment, with a detachment of the 39th Regiment, and a party of convicts, numbering all told about 75, to found a settlement at King George III. Sound. The expedition, consisting of H.M.S. "Fly" and the brigs "Amity" and "Dragon," sailed from Sydney on the 9th November, 1826, and landed at the Sound on the 25th December following.

The names which were originally given to the most prominent features on the Western coast are still in most instances retained, and serve to perpetuate the memory of many of the earliest explorers, their vessels, and the principal officers of their crews.

In 1826, Captain James Stirling, R.N., when commanding H.M. frigate "Success," was ordered to New South Wales on a special service in connection with the removal of the penal settlement from Melville Island on the North Coast, which the monsoon prevented him from at once undertaking. With the approval, therefore, of Governor Darling, he decided in the meantime to explore that part of Western Australia which King, on the ground that it had already been visited by the French, had consequently omitted from his survey. On the 17th January, 1827, having on board Mr. Charles Fraser, the Colonial Botanist of New South Wales, he sailed from Sydney with a view to make up the French survey deficiencies and to examine the country in the vicinity of the Swan River, where the establishment of a settlement was contemplated. The following particulars are mostly taken from an account written in Sydney by Mr. Augustus H. Gilbert, an officer of the "Success," and who afterwards arrived again in the Colony as Clerk on the "Sulphur." On the 2nd March Cape Leeuwin was weathered; Rottnest Island was reached and explored on the 5th March, and the next day the vessel anchored off the mouth of the Swan. On the following day the ship was moored off Berthollet Island, now

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H.M.S. "Success."

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called Carnac, after Lieutenant Carnac of the "Success," and on the 8th the first gig and cutter, victualled for a fortnight, and well armed, proceeded up the Swan River, which the party explored to its supposed source, experiencing, however, in doing so, great difficulty in getting their boats across the shallows near Heirisson Islands. Two gardens were planted about 15 miles up the river, and friendly relations were established, by means of presents, with a party of natives whom they met with on the 9th, and who, the records of the expedition mention, "seemed particularly fond of of bread and sugar," but who "could not relish salt meat." Abundance of swans and ducks were shot, the soil of the banks was examined, fresh water was found to be easily obtainable, and an ascent of the Darling Hills, then named "General Darling Range," was made by Mr. Fraser. The cutter then returned to the ship, leaving the gig to make a huried exploration of another river, to which the previous French explorers had given the name of the Moreau Inlet, now called the Canning river, which they satisfactorily accomplished. After this the crew were employed in surveying the Islands of Rottnest, Berthollet, and Bûache, and the adjacent rocks. On Bûache a garden, from which it probably derived its present name of Garden Island, was planted, and a cow, three goats, and three sheep were left there. The "Success," on the 21st March, 1827, sailed for Geographe Bay, which was reached on the 24th; on the 2nd April she arrived at King George III. Sound, where, it is said, they found the settlement by no means reached expectations. Leaving there on the 4th, the anchor was dropped in Port Jackson on the morning of the 15th April, 1827. Both Captain Stirling and Mr. Fraser appear to have been greatly impressed with the capabilities of the newly examined country, the latter making the following entry in his journal:—

"In delivering my opinion on the whole of the lands seen on the banks "of the Swan, I hesitate not in pronouncing it superior to any I have seen "in New South Wales, Eastward of the Blue Mountains, not only in its "local situation, but in the many existing advantages which it holds out to "settlers, viz.:—

"1st. The evident superiority of the soil.

"2nd. The facility with which settlers can bring their farms into "a state of culture from the open state of the country, the "trees not averaging more than ten to the acre.

"3rd. The great advantage of fresh-water springs of the best "quality, and consequent permanent humidity of the soil— "two advantages not existing Eastward of the Blue Moun- "tains.

"4th. The advantage of water carriage to their own doors, and the "non-existence of impediments to land carriage."

The favourable report made by Captain Stirling, backed up by the glowing description given by Mr. Fraser, induced General Darling to recommend the Home Government to at once establish a Settlement; and to Captain James Stirling, who appears to have conveyed the recommendation in person to England, the charge of organising the expedition was entrusted by the English Government.

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No commission was at that time issued to Captain Stirling as Lieutenant Governor of Western Australia, who instead received a letter of appointment, bearing date the 30th of December, 1828; the earliest commission issued to him was that appointing him to be Governor and Commander-in-Chief, which was dated 4th March, 1831. The reason for the adoption of this course is explained in the following despatch from Secretary Sir George Murray, addressed to him on the same date as the first letter of appointment, and instructing him as to the course to be followed in the formation of the then proposed settlement:—

"It having been determined by His Majesty's Government to occupy the post on the Western Coast of New Holland, at the mouth of the river called "Swan River," with the adjacent territory, for the purpose of forming a settlement there, His Majesty has been pleased to approve the selection of yourself to have the command of the expedition appointed for that service, and the superintendence of the proposed settlement.

"You will accordingly repair, with all practicable despatch, to the place of your destination, on board the vessel which has been provided for that purpose.

"As Swan River and the adjacent territory are not within the limits of any existing colony, difficulties may easily be anticipated in the course of your proceedings, from the absence of all civil institutions, legislative, judicial, or financial.

"Until provision can be made in due form of law for the Government of the projected colony, the difficulties to which I refer must be combated, and will, I trust, be overcome by your own firmness and discretion.

"You will assume the title of Lieutenant Governor, and in that character will correspond with this department respecting your proceedings and the wants and prospects of the settlement you are to form.

"Amongst your earlies duties will be that of determining the most convenient site for a town to be erected as the future seat of Government.

"You will be called upon to weigh maturely the advantages which may arise from placing it on so secure a situation as may be afforded on various points of the Swan River, against those which may follow from establishing it on so fine a port for the reception of shipping as Cockburn Sound is represented to be; and more effectually to guard against the evils to be apprehended from an improvident disposal of the land in the immediate vicinity of the town, you will take care that a square of three miles (or one thousand nine hundred and twenty acres) is reserved for its future extensions; and that the land within this space is not granted away (as in ordinary cases), but shall be held upon leases from the Crown, for a term not exceeding twenty-one years. You will, from the commencement of the undertaking, be observant of the necessity of making out and reserving, for public purposes, all those peculiar positions within, or in the vicinity of the projected town, which, from natural advantages or otherwise, will probably be essential to the future welfare of the settlement. In laying the foundations of any such town, care must be taken to proceed upon a regular plan, leaving all vacant places which will in future times be required for thoroughfares, and as the sites of churches, cemeteries, and other public works of utility and general convenience.

"You will cause it to be understood that His Majesty has granted to you the power of making all necessary locations of land. For your guidance in this respect ample instructions will, at a future period, be prepared. In the meantime I enclose a copy of the instructions of the Governor of New South Wales on this subject, to which you will adhere as closely as circumstances will admit.

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"You will bear in mind that in all locations of territory, a due proportion must be reserved for the Crown, as well as for the maintenance of the clergy, support of establishments for the purposes of religion, and the education of youth; concerning which objects more particulars will be transmitted to you hereafter.

"I think it necessary also to caution you thus early (as land on the sea or river side will naturally be the first to be located) that you must be careful not to grant more than a due proportion of sea or river frontage to any settler. The great advantages to be derived from an easy water communication will, of course, not escape your consideration, and this advantage should be divided amongst as many settlers as can conveniently benefit by their position in the vicinity.

"In regard to the surveys and explorations of the country, which you may think it right to set on foot, it is perhaps premature to give you any instructions upon a point when so much must be left to your own discretion and intelligence as to the nature of the soil and of the country, which you may obtain on the spot; looking, however, to the future prospects of the settlement, and the advantages of its local position, I should be inclined to think that it will be expedient to make the country South of Swan River the scene of your labours, rather than the tract of country North of that stream, and that you will do well to invite the settlers to locate themselves according to this suggestion.

"You will endeavour to settle, with the consent of the parties concerned, a court of arbitration for the decision of such questions of civil rights as may arise between the early settlers, and until a more regular form of administering justice can be organised.

"You will recommend, by your counsels and example, the habitual observance of Sunday as a day of rest and public worship, as far as may be compatible with the circumstances in which you may be placed.

"With these few and general instructions for your guidance, assisted by the oral and written communications which have taken place between yourself and this Department, you will, I trust, be able to surmount the difficulties to which you may be exposed at the outset, enhanced as they will be by the want of any regular commission for administering the Government.

"An instrument of that nature, accompanied with all the requisite instructions, will be transmitted to you as soon as the indispensable form of proceeding in such cases will allow."

In 1829, on the 2nd May, Captain Chas. H. Freemantle, of H.M.S. "Challenger," who had been despatched from the Cape of Good Hope on the 20th March of that year, by Commodore Schomberg, of the Indian Squadron, for the purpose, anchored off the mouth of the Swan River, and, hoisting the British flag on the South head, took formal possession, in the name of His Majesty King George IV., of "all that part of New Holland which is not included within the territory of New South Wales."

Exactly one month later, on the 2nd June, the hired transport "Parmelia," 443 tons, J. H. Luscombe, commander, arrived in Cockburn Sound, having on board Lieutenant-Governor Stirling, his family, and other intended settlers, numbering in all 69. Six days later, on the 8th June, her consort, H.M.S. "Sulphur," arrived with a detachment (Light Company No. 2) of the 63rd Regiment, consisting of three subalterns, 1 staff officer, 2 sergeants, 3 corporals, 1 bugler, and 46 men, under the command of Captain F. C. Irwin. Having left a party of about half its strength to protect the stores,

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settlers, etc., on Garden Island, the remainder of the force, on the 17th June, disembarked, and encamped on the North bank of the Swan, now Rous Head, relieving the party of seamen and marines from the "Challenger," which had been left to protect the British flag planted there by Captain Freemantle during the preceding month. With the landing of the immigrants from the "Parmelia," the history of Western Australia, as a British Colony, begins.

The following account of the arrival of the first settlers was contained in a despatch sent by Captain Freemantle to the Admiralty, from Trincomalee, on the 8th October, 1829:—

"The 'Challenger' arrived and anchored off Garden Island (late Isle Bûache of the French) on the 25th April, 1829, and on the 27th proceeded through the passage into Cockburn Sound, which is most rocky and intricate, in consequence of which she struck on a sunken rock; but I do not anticipate that she has received any damage, as she came off immediately, and makes no water. On the 28th she was secured in the Sound, and possession was immediately taken of Garden Island; fresh water was found by digging wells in the sand, and firewood in great abundance, the Island being covered with a small kind of pine, and fit for no other use.

"The weather being unsettled and boisterous, it was not till the 2nd of May that I could land at the Swan River, distant 9½ miles from Cockburn Sound. On that day formal possession was taken of the whole of the West coast of New Holland in the name of His Britannic Majesty, and the Union Jack was hoisted on the South head of the river.

"On the 6th of May a party of 25 men, under the command of Lieutenant John Henry, was landed in a little bay close to the mouth of the river, to the Southward of it, being the only landing place in that neighbourhood where boats could go to with security, the bar at the entrance of the river generally being impassable; the crew of the 'Challenger' were employed refitting and watering the ship.

"On the 1st of June a merchant ship was reported in the offing, and on the 2nd she was seen standing into Gage Roads. She proved to be the 'Parmelia,' merchant ship, hired by Government, having on board Captain Stirling, R.N., appointed Lieutenant-Governor of the new settlement at Swan River, and other gentlemen, with their families, holding situations in the Colony. In running into Cockburn Sound she grounded on the bank between Pulo Carnac (or Isle Bartollet of the French) and Woodman's Point on the Main, and it was not until the next morning, with all the exertions of this ship's crew and boats, that she was extricated from her perilous situation, after she had received much damage; she was subsequently brought near the "Challenger" and secured in Cockburn Sound. His Excellency the Lieutenant-Governor having determined to make his first landing on Garden Island, in consequence of the commencement of the winter season, the weather

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being generally boisterous, rainy, and unsettled, and the communication with the mainland very uncertain, he requested that I would render him all the assistance of the 'Challenger's' crew in clearing parts of the island, building houses for himself and the rest of the colonists, and clear the transport as soon as a storehouse could be erected for the reception of the Government stores. I immediately employed every means in my power to forward his wishes, and the 'Challenger's' crew were employed in any way the Lieutenant-Governor wished, for the benefit of the Colony.

"On the 8th June His Majesty's ship 'Sulphur' anchored in Cockburn Sound, with a detachment of troops on board for Swan River. On the 17th they were disembarked, and part of them sent to relieve the marines and seamen of this ship at the mouth of the River, the weather being so boisterous as to prevent their landing on the main sooner. By the end of the month, having completed all the storehouses and landed most of the cargo from the 'Parmelia,' His Majesty's ship was prepared for sea to join the Commander-in-Chief in India, in compliance with orders received by His Majesty's ship 'Sulphur' to that effect, when I received an application from the master of the 'Parmelia,' as also a requisition from the Lieutenant-Governor, to heave down and make good the defects of that ship, as she had received much damage and could not pursue her voyage, and if this ship was to leave the anchorage without rendering her the assistance required, the 'Parmelia' would be abandoned. I therefore considered it my duty, after ordering a survey to be held on her, to detain His Majesty's ship in Cockburn Sound, and to put her in a state to pursue her voyage, an account of which has been delivered to Rear-Admiral Sir Edward Owen; and it was not till the 28th of August that the 'Challenger' was enabled to leave Swan River. On leaving the Colony I have to state that two ships have arrived from England with settlers, and one from the Cape of Good Hope with cattle; many others were expected. The Lieutenant-Governor had fixed on a site for a town about 12 miles up the Swan River, on the right bank, just below the islands, where he intended removing to immediately with the whole of the party landed on Garden Island. The town is to be called Perth; there is also another town to be built at the mouth of the river for the convenience of the shipping in Gage Roads, near the spot where the party from the ship first established themselves. The number of settlers arrived from England, including women and children, were about 150, making the whole party now at Swan River amount to nearly 300 persons; they had upwards of a twelvemonth's provisions, and were perfectly healthy. The soil of the sea coast was generally sandy, but on arriving at the fresh water in the Swan and Canning rivers, the banks were rich, and the soil capable of producing anything.

"I cannot conclude without making some remarks on the anchorage in Cockburn Sound, which we had a good opportunity of trying, having remained there for the three winter months in the greatest security, and I consider it to be a safe and good harbour,

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capable of containing any number of ships; unfortunately the passage in is intricate, and requires to be well buoyed. At present it cannot be approached without the greatest caution, and ought not to be attempted except in the finest weather.

"Gage Roads is open to four points, which makes it at present a doubtful anchorage during the winter months; but for nine months ships may ride there with safety, and the approach is perfectly easy, as there are no dangers to the Northward of Rottenest Island to the mouth of the Swan River."

2.—COLONISATION AND EARLY SETTLEMENT.

Directly the intention of the Imperial Government to establish the Swan River Settlement became known, a proposal was, on the 4th November, 1828, made by a syndicate consisting of the following gentlemen—Mr. Thomas Peel, Sir Francis Vincent, Bart., Mr. Edward W. H. Schenley, and Colonel T. Potter Macqueen, M.P., to send out and settle in the neighbourhood of the Swan River 10,000 of His Majesty's subjects from England, Ireland, and Scotland, and to find them in provisions and every other necessity usually allowed to emigrants; also to bring to the settlement 1,000 head of horned stock, and to arrange for three small vessels to subsequently run between Sydney and Swan River, as occasion might require; the undertaking to be completed within four years. In payment of their expenses, estimated at £30 per head of the emigrants brought over, they expressed their willingness to take free grants of land, at a valuation of 1s. 6d. per acre, and they further promised to provide proper surveyors for the purpose of locating to every male not less than 200 acres of land from the quantity they were to receive. The object of the proposed settlement was stated in the following words:—

"It is well known that the soil of Swan River, from its moist state, is better adapted to the cultivation of tobacco and cotton than any other part of Australia. Both of these articles are intended to be cultivated upon a large scale; as also sugar and flax, with various important articles of drugs that the climate is peculiarly adapted to the growth of.

"The undersigned are satisfied, that should they succeed in sending home to the mother country that produce which at this moment the Government are indebted to powers which it would be their policy to suppress, were they in a condition so to do, they will

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have forwarded not alone the views of His Majesty's Government, but effected a national good which neither time nor circumstances can erase from the annals of British history.

"Their grazing operations will go very extensively into the rearing of horses for the East India Trade, with the most important establishment of large herds of cattle and swine, *for the purpose of supplying His Majesty's* or other shipping *with salt provisions*, as the proximity of salt mines, of the best description, holds out a great inducement towards its success."

Owing to the delay which occurred in the Colonial Office in coming to a mutually satisfactory arrangement as regards the terms upon which the immense free grant of land asked for was to be made, three members of the syndicate withdrew from it, leaving only Mr. Thomas Peel who, on the 28th January, 1829, again addressed the Colonial Office, stating that he was desirous of carrying on and completing the project by himself on the terms contained in a letter from the Colonial Office to the syndicate as originally composed, dated 6th December, 1828, which read as follows:—

"I am directed by Secretary Sir George Murray to acquaint you, in answer to your memorial dated the 14th of last month, that the terms upon which the free grants of land will be made in the proposed settlement of Western Australia are those contained in the paper, a copy of which I enclose. His Majesty's Government, however, are desirous that the experiment should not be made, in the first instance, upon a very large scale, on account of the extensive distress which would be occasioned by a failure in any of the objects expected from the undertaking; and they therefore consider it their duty to limit the grant which you request to a maximum of one million of acres. Half a million of these will be allotted to you as soon as possible after the arrival of the first vessel taken out by you, which may contain not less than four hundred persons of both sexes, in the proportions of not less than five female to six male settlers; and if you shall have covered this grant by investments, in accordance with the enclosed terms, before the expiration of the year 1840 the remaining half-million will be allotted to you by degrees, as fresh importations of settlers and capital shall be made, in accordance with the terms already mentioned. But in order that you may suffer no ultimate loss by any reasonable retardation of your investments, His Majesty's Government intend that the allowance of forty acres for every £3 invested shall not be reduced on your second half-million of acres, although your claim to such second half-million may not arise before the expiration of next year, which is the period limited to other settlers applying for free grants. But they will reserve your claim at the original rate of 1s. 6d. per acre until the expiration of the year 1840, after which time no part of your grant will be held binding upon which the whole required sum of 1s. 6d. per every acre shall not have been actually invested. A convenient allotment of land will be reserved for the town and harbour, for public buildings, and for the accommodation of future settlers; and

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a priority of choice to the extent of one hundred thousand acres will be allowed to Captain Stirling, whose surveys and reports of the coast have led to the formation of the settlement. The remaining land will be chosen by the settlers in the order of their arrival; those who arrive together drawing lots for the priority of choice."

The enclosure was a copy of the old terms of settlement on the Swan River, worded as follows:—

"Although it is the intention of His Majesty's Government to form a settlement on the western coast of Australia, the Government do not intend to incur any *expense* in conveying settlers, or in supplying them with necessaries after their arrival.

"Such persons, however, as may be prepared to proceed to that country, at their own cost, before the end of the year 1829, in parties comprehending a proportion of not less than five female to six male settlers, will receive grants of land in fee simple (free of quit rent) proportioned to the capital which they may invest upon public or private objects in the Colony to the satisfacton of His Majesty's Government at home, certified by the Superintendent or officer administering the Colonial Government, at the rate of forty acres for every sum of £3 so invested, provided they give previous security: first, that all supplies sent to the Colony, whether of provisions, stores, or other articles which may be purchased by the capitalists there, or which shall have been sent out for the use of them or their parties on the requisition of the Secretary of State, if not paid for on delivery in the Colony, shall be paid for at home, each capitalist being to be held liable in his proportion; and, secondly, that in the event of the establishment being broken up by the Governor or Superintendent, all persons desirous of returning to the British Islands shall be conveyed to their own home at the expense of the capitalists by whom they may have been taken out. The passages of labouring persons, whether paid for by themselves or others, and whether they be male or female, provided the proportion of the sexes before mentioned be preserved, will be considered as an investment of capital, entitling the party by whom any such payment may have been made to an allowance of land at the rate of £15, that is, of two hundred acres of land for the passage of every such labouring person over and above any other investment of capital.

"Any land thus granted which shall not have been brought into cultivation or otherwise improved or reclaimed from its wild state, to the satisfaction of Government, within twenty-one years from the date of the grant, shall, at the end of the twenty-one years, revert absolutely to the Crown.

"All these conditions with respect to *free* grants of land, and all contracts of labouring persons and others, who shall have bound themselves for a stipulated term of service will be strictly maintained.

"It is not intended that any convicts, or other description of prisoners, be sent to this new settlement.

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"The government will be administered by Captain Stirling, of the Royal Navy, as Civil Superintendent of the Settlement; and a Bill, in the nature of a civil charter, will be submitted to Parliament in the commencement of its next session." (Dated, 5th December, 1828.)

It is worthy of note that, when shortly after new regulations were drawn up, only ten years were allowed under these for bringing land into cultivation.

Invested capital, according to the regulations, was to comprise:—

(1.) Stock of every description.

(2.) All implements of husbandry and other articles applicable to the purposes of the productive industry, or necessary for the establishment of the settler on the land where he is to be located.

(3.) The amount of any half-pay or pension received from Government.

Under the word "persons," it was distinctly understood no children under 10 years of age were to be included.

Selection licenses were granted to settlers on proof of value of property imported, but the fee simple could not be obtained until proof was given that the sum of 1s. 6d. per acre had been expended in the cultivation of the land or in other solid improvements.

All land granted was to be within three years cultivated or otherwise improved, or reclaimed from its wild state, to a fair proportion of at least one-fourth, or the owners would be liable to the payment of 6d. per acre into the public chest; and should the land, at the end of a further seven years, still remain in an unimproved state, it was then to revert absolutely to the Crown.

After the year 1830 fresh conditions were to be made as to the disposal of land.

The tempting offer made by the Home Government of grants of land, large and small, in proportion to the amount of property introduced, attracted many holders of capital, the consequence being that extensive tracts of the best land were granted to purely speculative persons.

As regards Mr. Thomas Peel, it remains to be stated that he failed to carry out the greater portion of his contract, the very first emigrants whom he brought out giving him endless trouble by desertion and otherwise, so that years passed in litigation and vain efforts at settlement. Finally he made a formal application to the Governor, on the 25th September, 1834, for a grant of land of 250,000 acres on conditions of general improvement. In compliance with this request he was granted, on the 25th November following, the fee simple of the land now known as Cockburn Sound Location No. 16, "in consideration of certain location duties performed to he satisfaction of Governor Stirling."

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The first vessels to sail for the Swan River Settlement were H.M.S. "Sulphur," having on board a detachment of the 63rd regiment of Light Infantry, and the hired transport "Parmelia," which carried the emigrants and the principal part of their belongings. Leaving England on the 13th or 14th of February, they arrived in the Colony on the 8th and 2nd June, 1829, respectively.

The following is a List of the Passengers who embarked on board the "Parmelia."

Names.	Designations.	Ages of Children.	Names.	Designations.	Ages of Children.
Capt. Stirling, R.N.	Lt. Govr.		Mr. Jas. Drummond	Agriculturist	
Mrs. Ellen Stirling ...			Mrs. Sarah Drummond		
Andrew Stirling ...	...	3 years	Thomas Drummond	...	18 years
Wm. Stirling ...	his Nephew		Jane Drummond ...	...	16 years
Geo. Mangles ...			James Drummond	...	15 years
Geo. Eliot	...	11 years	John Drummond	...	13 years
Thos. Blakey			Johnson Drummond	...	9 years
Sarah Blakey			Euphemia Drummond	...	3 years
John Kelly			Elizabeth Gamble...		
Elizabeth Kelly ...			Mr. Chas. Simmons	Surgeon ...	
James Morgan ...	...	11 years	Mr. Tully Daly* ...	Asst. Surgeon	
Mr. P. Brown ...	Col. Secretary		Mrs. Jane Daly ...		
Mrs. Caroline Brown			Jessie Jane Daly* ...	...	8 years
MacBride Brown ...	...	2 years	Joseph T. Daly ..	...	6 years
Ann Brown	...	6 months	Hy. Jno Daly ...	...	4 years
Richard Evans ...			Edwd. N. Daly ..	...	2 years
Margaret McLeod ...			Eliza Rose Daly ...	...	2 months.
Mary Ann Smith ...			Jas. Elliott		
Mr. James Morgan ...	Storekeeper		Alex. Fandam ...	Cooper	
Mrs. Rebecca Morgan			Mary Fandam ...		
Rebecca Morgan ...	...	12 years	Wm. Hoking ...	Artificer	
Ann Shipsey			Mary Hoking ...		
Patrick Murphy ...			Jno. Hoking ...	...	14 years
Commander M. J. Currie, R.N. ...	Harbour Master		Wm. Hoking ...	...	12 years
Mrs. Jane Currie ...			Mary Hoking ...	...	10 years
Frederick Ludlow ...			Thos. Hoking ...	...	8 years
Mildred Kitts Ludlow			David Hoking ...	...	6 years
Jane Fruin			Chas. Hoking ...	...	2 years
Mr. Jno. S. Roe ...	Surveyor ...		Thos. Davis... ...	Smith	
Mrs. Matilda Roe ...			Catherine Davis ...		
Chas. D. Wright ...			Jno. Davis ...	...	3 years
Mr. Hy. C. Sutherland	Asst. Surveyor		Charlotte Davis ...	...	2 years
Mrs Ann Sutherland			John Davis ...	his Nephew ...	13 years
Mr. W. Shilton ...	Clerk to Col. Secretary		James C. Smith ...	Boatbuilder	
			Sarah Smith ...		

* Drowned in Table Bay (Cape of Good Hope) on 25th April, 1829.

Closely following the "Sulphur" and "Parmelia," a number of vessels arrived, rapidly adding to the little band of settlers, and introducing the live stock necessary for colonisation.

For a list of these vessels, *vide* Year Book 1892-3, page 12, and two subsequent editions.

Reporting on the progress of the Colony, in a despatch dated 20th January, 1830, Sir James Stirling mentions that two townsites had been laid out, one to be named Perth and the other Freemantle; and that the country extending between the sea and the mountains fifty miles Southward from Perth had been thrown open for location.

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As regards the composition of the population of the early settlement, he complains that, whilst "amongst the heads of families there is a great majority of highly respectable and independent persons, there is in the working class a great variety," some having been carefully selected, but the greater part being the outcasts of parishes recommended to their employers by parish officers, and possessing habits of the loosest description; the natural consequence being great inconvenience to their masters and endless trouble to the authorities. He had, therefore, been obliged to appoint a magistracy and a body of constables to maintain order, since which drunkenness and similar evils had been less frequent.

Another source of trouble was that many of the settlers were persons entirely unprepared for the hardships inseparable from initial colonisation, whose consequent disappointment and discouragement had created and spread a feeling of depression and general despondency amongst their fellows. From this depression the active and stout-hearted were gradually recovering, and there was no reason to take a gloomy view of the future; but it would be necessary to contradict the reports of "certain individuals who have seen only the sea beach, and have stated broadly that there is no good soil" to be found in the Colony.

The climate, it is said, was proving "favourable to health in an uncommon degree."

Amongst other items of interest, it is mentioned that a decent place of worship had been erected, owing principally to the energy of the Venerable Archdeacon Scott, a visitor to the Colony.

It was proposed to establish towns on the Murray River, on Cockburn Sound, and on the Swan, at the site of the present town of Guildford.

Commenting on the stock and the prospects of the settlement in this direction, it is stated that "the country as it is will certainly sustain a considerable number" of cattle, horses, and sheep, "as there is both food and water at the present season (January), the driest and worst of the year." Attention is also drawn to the fact that the class of stock introduced was particularly good.

The rivers and coasts abounded in fish, and offered facilities for fish-curing and the establishment of a whale fishery, as "the coast is visited between the months of May and November by a multitude of whales." The boat-building industry was being vigorously pursued, and already 40 boats had been built for transport purposes on the river. A statement in the report, which reads curiously at the present time, is that workmen had not been able to work between the hours of 10 a.m. and 3 p.m. during the months of December and January, on account of the heat.

The following interesting statistical information is added:—

Since the 1st June, 1829, 25 ships had arrived, and there were then 850 persons resident and 440 non-residents in the Settlement. The value of the capital, etc., introduced, for which land

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was claimed, amounted to £41,550; land had already been allotted to the extent of 525,000 acres, the locations actually effected numbering 39; and finally, there were in the settlement horned cattle to the number of 204, horses 57, sheep 1,096, and hogs 106.

In a further despatch of the 18th October, 1830, it is stated that "the progress of the settlement, although not unopposed by many adverse circumstances, had been as rapid as could have been expected or desired," as "a greater increase would have probably been disadvantageous to the welfare of the settlement whilst struggling in its infancy." Unfortunately, "although no doubt existed as to the salubrity of the climate and country, much sickness had been experienced, and deaths in consequence had been very numerous." These, however, are attributed to "circumstances of a temporary nature attendant on the commencement of a colony."

Exploration of the country and coast had been carried on as far as means available had admitted.

The natives in general had been harmless, except in two cases, one being in Perth, where, in May, 1830, an affray occurred which led to the military being called out; whilst in the Murray district they had been so repeatedly troublesome—in one instance a young man having been murdered at the entrance of the Murray River—that a military guard had to be placed there.

Up to the 31st December, 1830, there had arrived in the Colony as nearly as can be reckoned, without counting the detachment of troops and their families in the "Sulphur," "Norfolk," and "James Paterson," about 1,767 persons, with stock as follows:—Horses 101, cattle 583, sheep 7,981, pigs 66, goats 36, and a variety of poultry, including turkeys, ducks, geese, fowls, and pigeons, and also a few dogs.

The value of the property introduced upon which land was claimed between the 1st of September, 1829, and 30th June, 1830, amounted to £73,260 8s. 3½d., equal, at 1s. 6d. per acre, to 976,805 acres of freehold land, whilst miscellaneous property inapplicable to the improvement of land had been imported to the value of £21,021 2s. 7d., making a total value of £94,281 10s. 10½d.

To show how rapidly and prodigally all the best land was taken up, a late arrival wrote, on the 12th November, 1830, just five months after the first settlement of the Colony:—"The only land available for present purposes is on and near the banks of the rivers (viz., the Swan and Canning). All this is now allotted on both sides of each river, almost to their source"; and, writing again on the 8th December, in the same year, he said "All the lands up the Swan and Canning have been long since granted, but some of the grantees have left the Colony, and their lands may be resumed by the Government if not occupied at the expiration of the year."

There being no made roads, and the bush tracks consisting solely of dry, heavy sand, water carriage was the one means of

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transport for produce, and the only way to obtain land, in an accessible position, suitable for farming purposes, was for the recent arrival to take over a portion of a block already granted, guaranteeing to the owner to perform sufficient location duties on the part taken to secure the whole grant, when the remainder of the property in all probability was left permanently unimproved.

Many of the early arrivals were persons totally unqualified for a settler's life, especially as the pioneers of a new settlement.

Arriving also as they did during the most inclement season of the year, exposed to the elements, and utterly unaccustomed to encounter the hardships and privations incident to their new life, in most cases totally ignorant of agriculture, and unused to poverty and isolation, there is little wonder that the first reports which reached their friends in England were of a gloomy and discouraging description.

Numerous persons, indeed, left the Colony in disgust, but retained possession of the immense tracts of land granted to them; so that those who arrived afterwards were unable to obtain land in favourable localities, and the population was in this way thinly scattered over a wide area, the best of the land being unprofitably locked up.

Gradually, also, it was discovered that the expectations entertained as to the fertility of the soil had been far too sanguine; food became scarce, and pastoral and agricultural operations languished from want of capital to stock and till the lands. Sheep and cattle went blind or dropped dead in a mysterious way, from eating the (at that time unknown) poison plant, and at last it became apparent that the infant settlement could only with great difficulty support itself independently of extraneous aid. On the top of all this came serious troubles with the natives—life was threatened, houses were robbed, crops rooted up, and stock speared; and the abandonment of the Colony was at one time seriously contemplated.

But the settlers as a body struggled manfully on, maintaining (to quote Governor Stirling's despatch to Sir George Murray, G.C.B., the then Secretary of State for the Colonies) "a cheerful confidence in the qualities of the country and a general belief in its future prosperity."

A few years later, in a despatch of 29th August, 1836, a suggestion is made that experiments on a limited scale should be encouraged in the northern parts of the colony in the production of cotton and sugar, through the instrumentality of Bengalese or Chinese labour, the success of which, it is stated, would mean that "Great Britain might render herself in a short time independent of the United States and other foreign slave-holding countries for her supply of cotton, the regular importation of which, at low prices, has become indispensably necessary to the daily support of a large portion of her population."

With such an abundant extent of country applicable and available for the production of sugar, cotton, and other inter-tropical

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products, and possessing from its geographical position the advantage of being readily able to secure the class and mass of labour required, it is argued that, given only the transport facilities for obtaining the necessary supplies and labour, with the aid of skill, capital, and the benefit of British protection, the sugar or cotton grower, if once successfully established, might defy competition even with those countries which still employed slave labour, and possibly, by thus rendering slavery unprofitable, eventually assist towards its extinction.

The condition of the Colony about that time is graphically described (Despatch No. 218—15, 10, '37) in a statistical report forwarded to the Colonial Office, which contained full particulars concerning its geography and other natural characteristics, a brief census of its population, and much other useful and interesting information.

The discovery of copper ore by Captain King in the vicinity of Camden Bay is mentioned as being not unlikely to lead to other important mineralogical discoveries.

Governor Stirling's opinion of the capabilities of the soil, based upon personal observation and experience, is neither over sanguine nor yet wholly unfavourable, and is perhaps best given in his own words:—

"The surface of the country generally is covered with those substances which are technically called earths, in contradistinction to soils. Of the latter, as far at least as relates to those of a vegetable origin, a very small portion exists, and that only on moist grounds. The extreme drought of the climate and the summer conflagrations appear to prevent the growth of succulent plants, as well as any great accumulation of soil from decayed vegetation. But although the country is not remarkable for richness of soil, it is favourable in other respects to farming purposes. In its natural state there is scarcely any part which does not produce some description of plant, and its defects appear to be of that class which art, aided by climate, will be enabled hereafter to overcome. . . . . Upon a general view of that portion of the territory which has fallen within my own knowledge, I am under the necessity of saying that a very large portion of its surface, extending probably to three-fifths of the whole, is poor and comparatively unprofitable, and unlikely to be cultivated, or to yield any return except in timber, until a dense population and low wages, aided by abundance of cattle, bring it into use.

"The best districts at present known are those on the Avon, the Hotham, the Williams, Arthur, Beaufort, and South-East River, together with the portions of country adjacent to the Swan, the Murray, the Harvey, Brunswick, Preston, Capel, and Vasse.

"It is to be remembered, however, that these remarks apply only to the very small part of this vast country which has been as yet explored, and that in the progress of settlement circumstances

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are continually arising to give value to lands, which, while wages are high and roads wanting, are not of the slightest value."

He again calls attention to the possibilities of the Northern parts of the Colony for sugar and cotton growing, but points out that "Experiments in these branches of industry are, however, beyond the means of the numbers of the colonists at present," adding that he ventures to anticipate "that the estimation of the Colony in the eyes of the public will be gradually enhanced the longer this peculiarity in its natural qualifications is considered and examined."

The following are some of the more important particulars which are further contained in the report:—

The number of town allotments granted in Perth to the 30th June, 1837, was 422; that of suburban allotments, 15; miles of fencing completed, 35, valued at £5,600; the number of houses built, about 350, valued at £30,000; the value of suburban improvements was estimated at £4,000, that of gardens at £2,000, of mills at £3,000, and of public works at £15,000. A similar valuation of Fremantle public and private property amounted to a total of £28,000. The aggregate of the corresponding amounts for Guildford, Albany, Augusta, Kelmscott, York, Peel Town, Busselton, and Kings Town, together with Perth and Fremantle, was about £93,000. The population of Perth numbered 590, that of Fremantle 387, of Swan River District 524, of Canning River District 41, York 65, Plantagenet 170, Murray 17, Augusta 32, and Vasse 21; in addition to these there were the military, who, with their women folk and children, numbered 185; the total population therefore numbered 2,032. Of the non-military population, 506 were married and 1,341 single. The total of 2,032 comprised 914 males over 14 years of age, 368 males under 14 years, 430 females over 14, and 320 females under 14. The total population in 1832 had been 1,510, and the increase was mostly due to the excess of births over deaths. The deaths during the preceding 12 months had been at the rate of 1 in 200. Of the adult male population no less than 449 were engaged in agricultural pursuits. At the end of 1836 there had been about 1,380 acres under wheat, the total land in crop being about 2,100 acres. Sheep numbered 8,528, horned cattle 829, horses, 216, pigs 819, and goats 1,286. The wheat produced during the year amounted to 22,104 bushels. The estimated value of improvements on rural grants was £75,000. The total number of acres granted to 30th June, 1837, was 1,524,004. The exports during the year amounted to £6,720, of which £2,400 represented wool and £3,200 oil, mostly probably the product of the whale fishery. The total wealth of the Colony was estimated at £360,000, producing, with the labour of the community, after deducting its subsistence, a clear annual accumulation of capital to the extent of £72,000. The revenue of the Colony for the year was £4,586. As regards labour, the wages for general labourers were about 5s. per day, but artificers earned from 8s. to 10s. Labour was still scarce, and although the Colony was self-

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supporting and money seemed to be abundant, the apparent wheat-, wine-, and fruit-growing capabilities of the soil could not as yet be taken advantage of to any great extent, on account of the difficulty experienced in obtaining suitable workmen. That money was abundant was proved by the fact that a joint-stock bank which had been recently established, discounting bills at 12½ per cent. per annum, and allowing depositors an interest of 5 per cent., was principally working with deposits to the value of £4,000, and had so far only had occasion to call up £1,250 of its nominal capital of £10,000. The public expenditure for the year ended March, 1837, had been £10,753, whilst the payments in connection with the troops, provisions, etc., amounted to £11,022. It was foreseen that considerable expenditure would be necessary in the near future, there being practically as yet no made roads. Perth and Fremantle town lots were then sold at the rate of £5 per acre. In 1832 the sale of rural Crown lands had come into operation, and in 1834 this had been made applicable to town allotments. During the first three years of the Settlement property in live stock, implements, provisions, apparel, furniture, etc., had been imported to the value of about £120,000. Since then, it was estimated, such importation had been increased by about £100,000, whilst the probable value of re-exported property was £20,000. The total outlay of the Crown to the 31st of March, 1837, on behalf of the Swan River Settlement, had been £145,167. It was adduced as proof of a fairly satisfactory moral condition of the population that, during the eight years of the colony's existence, not a single sentence of death had been required to be passed. As a further indication of progress, it was mentioned that, in addition to the *Government Gazette*, two newspapers were in existence, one, the *Perth Gazette*, having already existed some years, whilst the other, the *Swan River Guardian*, had been established in 1836, "as the friend of the people and the corrector of abuses."

For a time the Colony continued to progress steadily, if slowly. Its development was once more, however, retarded by the discovery of the marvellous goldfields of Victoria, and again it seemed probable that it would be entirely deserted. Happily, however, the Goldfields of the Eastern Colonies have now ceased to possess the extraordinary fascination they formerly did; and Western Australia, with magnificent goldfields of her own, her vast area of agricultural and pastoral lands, her timber, and numerous other undeveloped resources, offers at the present time to the capitalist, be he large or small, and the industrious and thrifty immigrant, a far better chance of success than those countries where competition is more keen and opportunities are more rare; it being a country where every diligent settler may secure an independence and possess at least the substantial comforts, if not at present all the more refined luxuries, of life.

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3.—HISTORICAL EVENTS.

1826.

25th December.—Major Lockyer, of the 57th Regiment, who had left Sydney on the 9th November with a detachment of the 39th Regiment, and a party of convicts, numbering all told 40 persons, comprising 2 officers, 18 rank and file, and 20 convicts, landed at King George III. Sound, to found a settlement. To the town which was there built he gave the name of Frederick Town, but the name was subsequently changed to Albany. Having made all necessary arrangements, he left the charge to Captain Wakefield, of the 39th Regiment, who was relieved by Lieutenant Sleeman, and he by Captain Barker. This settlement was at first governed from Sydney, but either at the end of 1830 or the beginning of 1831 it was annexed to the Swan River Settlement, Dr. Alexander Collie being appointed Government Resident; and the convict portion of the population was consequently removed to Van Diemen's Land.

1829.

6th February.—The transport "Parmelia," having on board Lieutenant-Governor Stirling and family and intending settlers, numbering in all 69 persons, sailed from Spithead, bound for Western Australia.

9th February.—She was joined at Plymouth by H.M.S. "Sulphur," with a detachment of 57 officers and men of the 63rd Regiment on board, under the command of Captain F. C. Irwin.

25th April.—Dr. Daly and his eldest daughter, passengers in the "Parmelia," were drowned, through the capsizing of a boat at the Cape of Good Hope. On the same date Captain C. H. Freemantle, of H.M.S. "Challenger," anchored off Garden Island. He landed at South Head, near the mouth of the Swan River, on 2nd May, and took formal possession in the name of His Majesty King George IV.

2nd June.—The "Parmelia," which had been sighted from H.M.S. "Challenger" on the previous day, in running into Cockburn Sound, grounded on what is now called Parmelia Bank, off Carnac Island, and was not got off until the next morning. The Governor and settlers first landed and encamped on Garden Island.

8th June.—H.M.S. "Sulphur" anchored in Cockburn Sound, and on the 17th the troops were disembarked.

18th June.—Lieutenant-Governor Stirling issued his first proclamation, establishing His Majesty's authority over the settlement.

13th July.—The Reverend J. B. Wittenoom appointed chaplain to the Civil Establishment at Swan River, by Despatch No. 4, 13th July, 1829.

12th August.—First stone of the town of Perth publicly laid.

28th August.—The land regulations of the new colony were first proclaimed.

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5th September.—F. C. Irwin, J. B. Wittenoom, M. Hodges, G. Leake, and P. P. Smith were assigned allotments within the townsite of Perth; and W. Lamb, J. Hobbs, L. Samson, and T. Bannister were the same day assigned allotments in Fremantle.

29th September.—The first grants for agricultural areas were issued by the Crown Land Department, covering 69,771 acres of land, principally on the Swan River.

17th November.—The first exploring expedition set out from Perth, under the command of Lieut. William Preston, accompanied by Mr. Alexander Collie.*

25th December.—First white child born in Western Australia, the late Mrs. S. P. Phillips, daughter of Lieut. J. S. Roe, Surveyor General.

Between 2nd June and 31st December 18 vessels arrived at the Port of Freemantle. First shipment of sheep was brought to the Colony in the "Caroline," by Mr. T. Henty. Most of these sheep were re-shipped to Tasmania in 1831.

An Agricultural Society formed this year. Members admitted by ballot.

1830.

January.—The "Parmelia" returned to Freemantle from the Dutch East Indies with a cargo of grain, cattle, and pigs.

February.—The "Parmelia" sailed for England.

6th March.—Military station established at Leschenault.

26th April.—First land taken up in the vicinity of King George Sound.

May.—The immigrant ship "Rockingham" wrecked near Rockingham. One life lost.

11th May.—The townsite of Augusta laid out.

Severe storms in May and June. The Swan overflowed its banks, doing considerable damage.

May.—First trouble with the aborigines. While attempting to commit a robbery, one black was killed and three wounded. A short time after, in retaliation, they murdered a man named McKenzie, at the Murray.

1st. November.—The first Executive Council appointed.

Thirty-nine vessels arrived at Freemantle during the year.

1831.

January.—Governor appointed Executive and Legislative Council, consisting of His Excellency the Governor, Captain Irwin, Mr. P. Brown, Lieut. J. S. Roe, and Mr. G. F. Moore.

* For particulars of this and later expeditions, *see* chapter on "Exploration in Western Australia."

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Perth Natives -Camp at Crawley in the early days.

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5th May.—Mr. W. H. Mackie appointed Advocate General, by Despatch No. 3, 5th May, 1831.

28th May.—An Agricultural Society organised in Perth.

5th September.—The first body of settlers, under Ensign Dale, crossed the Darling Range and explored the country in the vicinity of the present town of York.

24th December.—Appointment of Sir James Stirling as Vice Admiral of the settlement in Western Australia.

A monthly service of boats established between Guildford and Fremantle.

The first newspaper, the *Fremantle Observer*, issued this year.

Twenty-seven vessels arrived from foreign parts during the year.

One hundred and sixty acres of wheat were reaped this year, and there were 200 acres under cultivation in the Colony, the labour being mostly done by hand.

1832.

January.—The first sitting of the Legislative Council of the Colony.

10th February.—The Civil Court of the Colony established. Mr. G. F. Moore appointed Commissioner.

Thirteen vessels arrived at Fremantle from foreign parts this year.

The first vineyard established in the Colony by Mr. McFaull at Hamilton Hill, near Fremantle. The vines were obtained from the Cape.

1833.

5th January.—The *Perth Gazette and Western Australian Journal* first issued.

2nd October.—First horse race in the Colony, held on the South beach, near Fremantle.

Twenty-one vessels arrived at Fremantle from foreign parts this year, bringing 73 passengers.

The townsites of Northam and Toodyay surveyed.

1834.

28th October.—The natives of the Murray District having been very troublesome for some time, a punitive expedition started on the 27th October, under Sir James Stirling, numbering in all 25 men, settlers, mounted police, and soldiers. On the 28th, near Pinjarra, an encounter took place, in which Captain Ellis was fatally, and one of the troopers slightly wounded, while at least 30 of the blacks were killed.

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6th November.—Cattle show held at Perth, under the auspices of the Agricultural Society.

The Legislative Council passed an Act establishing a postal department.

First shipment of wool—7,585lbs.—to England.

1835.

January.—Mr. C. McFaull appointed first postmaster at Perth, and M. J. Bateman at Fremantle.

Owing to the scarcity of a circulating medium, the Government decided to issue one-pound notes from the Commissariat Office.

July.—The first town allotments in York sold to Messrs. Bland and Trimmer.

This year is notable for an assessment of the value of land and the improvements in the Colony, with the number of live stock. The amount represented nearly a quarter of a million sterling. About 1,800 acres of land were under crop, and fifty bales of wool were sent to London.

1836.

May.—The first sea-going craft built in the Colony, "The Lady Stirling," was launched at Fremantle.

First shipment of W.A. timber to England.

A court house erected in Perth, at a cost of £700.

Contracts accepted by the Imperial Commissariat Department for the delivery at Perth of 1,200 bushels of wheat, at 12s. per bushel.

1837.

Early in the year the price of allotments in Perth, Fremantle, and Albany was fixed by the Lands Department at a minimum of £5 per acre.

Busselton surveyed and first lot sold to Mr. Chapman.

1st June.—The Bank of Western Australia commenced business. Nominal capital, £10,000; 25 per cent. of the capital only called up. Small deposits received on the Savings Bank principle, on which interest at 5 per cent. was allowed.

10th June.—The Fremantle Whaling Company began operations by the capture of a whale in Cockburn Sound.

Natives very troublesome at York, Beverley, and Northam. They murdered four white men and stole cattle and sheep from settlers throughout the valley.

In March direct communication between Perth and King George Sound was opened by road.

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The late Church of England Cathedral, Perth, founded January, 1841.

Perth in the early sixties.

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1838.

A temperance society and "The Sons of Australia" Benefit Society were established at Perth.—In June the Western Australian Bank declared its first dividend.

The Fitzroy and Adelaide Rivers (Kimberley District) discovered by H.M.S. "Beagle."

1839.

2nd January.—Governor Hutt arrived at Fremantle.

30th March.—A grant of land of 2,560 acres was offered to any person pointing out any considerable bed of coal in any part of the territory South of the parallel of the most Northern part of Shark Bay and West of the meridian of Mt. Barren.

1840.

January.—The ship "Shepherd" sailed for London, laden wholly with colonial produce.

August.—The *Inquirer* newspaper first issued in Perth.

2nd November.—The first pile driven of the old Perth Causeway.

Grammar school opened in Perth.

Foundation-stone of a Wesleyan chapel was laid at Fremantle by Governor Hutt.

1841.

1st January.—Foundation-stone of Anglican Church in Perth laid by Governor Hutt.

February.—The Townsite of Bunbury surveyed.

May.—The Bank of Western Australia bought out by the Bank of Australasia.

23rd June.—The new Western Australian Bank commenced business in Perth.—A weekly mail between Guildford and York, and an overland monthly to King George Sound, established.

1842.

1st January.—Wesleyan Church opened in Perth.

21st January.—Foundation-stone of a lighthouse at Rottnest laid by Mr. H. Trigg, Superintendent of Public Works.

6th April.—Regular mail service between settlements of the Colony inaugurated.

Foundation-stone of an Anglican Church at Fremantle laid by the Governor.

The "Diadem" arrived at Koombanah Bay, with 170 passengers for the Australind Settlement.

The Mill Street jetty opened to the public.—A "Western Australian Society" established.

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1843.

22nd March.—The "Success" arrived, carrying 134 immigrants, and having on board Mr. G. F. Moore, Advocate General of the Colony.

27th March.—Proclamation of "An Act for Regulating the Sale of Waste Land belonging to the Crown."

May.—The Perth "Causeway" completed.

1844.

June.—First shipment to India of horses bred in the Colony.

1845.

22nd January.—St. George's Church (Perth) opened for public worship.

December.—The first steam vessel, H.M.S. "Driver," visited Fremantle.

First shipment of sandalwood from the Colony.

1846.

July.—Reported discovery of coal at the Murray River.

September.—The first mining company organised in the Colony, viz.:—"The Western Australian Mining Company," to prospect for coal.—The New Norcia Mission established.

First Congregational Church opened in Perth.

1847.

1st March.—The foundation stone of the New Norcia Mission laid, with the medal of St. Benedict placed beneath it. The chapel being dedicated to the Holy Trinity.

July and August.—Heavy rains and floods, causing great damage to gardens and growing grain on the Swan, Avon, and other rivers in the South-Western Districts.

September.—Regulations for the leasing of Crown lands issued.

First export of guano from the Abrolhos.

1848.

September to November.—Copper and lead discovered in the Champion Bay District by the Messrs. Gregory.

10th October.—First systematic Census of the Colony taken by Mr. G. F. Stone, Registrar General.

December.—Governor Fitzgerald speared and wounded by blacks at Northampton.

1849.

Natives employed as letter carriers through the country districts.

Efforts were made to remove the bar at the mouth of the Swan River.

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1850.

1st June.—The "Scindian" arrived at Fremantle from England with the first convicts; a guard of 50 pensioners and 138 women and children on board.

June.—First town lots sold at Geraldton.—Minimum price of Perth city lots fixed by the Lands Department at £22 each in St. George's Terrace, Adelaide Terrace, and Waterside; £17 in Hay Street; back streets, £12.

Lieut. Helpman, while exploring on the Saturday Island Shoal, in Shark Bay, found pearl oysters, from which he obtained several fine pearls.

26th July.—The "Sophia," Captain Clabon, arrived with about 300 immigrants.

1851.

January.—A report on the existence of pearl oysters in Shark Bay, by Lieut. Helpman, of H.M.C. schooner "Champion," published in the Perth newspapers.—Formation of the Swan River Mechanics' Institute in Perth.

1st February.—The "Champion" returned from her cruise in Shark Bay and Champion Bay.

13th March.—Proclamation in W.A. of Imperial Act empowering the Colony to establish a Legislative Council.

15th August.—A Mechanics' Institute founded at Fremantle.

October.—Discovery of copper on the Geraldine mine.

1852.

25th May.—The foundation-stone of the Swan River Mechanics' Institute laid by Governor Fitzgerald.

July.—The Royal Mail S.N. Company's s.s. "Australian" landed the first mail at Albany. It took two horses six and a-half days to carry the mail to Perth.

August.—The "Chusan," the first P. & O. steamer to visit Australian waters, arrived from Singapore.

Smelting furnace erected at the Geraldine Mine.

Colonial wine exported for the first time this year.

1853.

11th May.—Chamber of Commerce organised in Perth.

Fifty-five tons of pig-lead exported by the Geraldine Mining Company.

1854.

30th September.—Second Census of the Colony taken by Mr. Charles Sholl, Registrar General.

The first postage stamps issued—the black penny stamp.

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1855.

March.—The steamer "Les Trois Amis" commenced running on the Swan, from Fremantle to Perth.

22nd June.—Government Savings Bank opened.

Grand juries abolished.

1856.

June.—Government Savings Bank closed.

July.—The first Anglican Bishop of Perth, Matthew Blagden Hale, M.A., arrived in the Colony.

October.—Contract entered into between the Home Government and the P. & O. Company for direct service with the Australasian colonies, calling at Albany.

Perth constituted a city.

1857.

Insolvency Act came into force.

January.—The "Pioneer," a steamer built of local timber, commenced to make trips to Guildford.

February.—The steamer "Lady Stirling" launched at Fremantle.

1858.

28th June.—The Bishop's School opened in Perth.

1859.

17th March.—Foundation-stone of Government House laid.

Imperial Government memorialised to assist in the construction of a railway from Champion Bay to the lead and copper mines at Northampton.

31st December.—Third Census of the Colony taken, under the joint supervision of the Hon. F. P. Barlee, Colonial Secretary, and Mr. A. Durlacher, Registrar General.

1860.

24th May.—Formation of a Western Australian Association in Perth.

August.—Townsite of Newcastle marked out.—Completion of a Museum connected with the Swan River Mechanics' Institute.

1861.

Ordinance passed by the Legislative Council for the organisation of a Volunteer Defence Force.

1862.

February.—Money Order Office opened in connection with the Post Office Department.

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June and July.—Great floods in various parts of the Colony. The Mount's Bay Road was 2ft. under water, the low lands and gardens along the Swan were submerged, and the jetties completely covered with water. At York buildings were carried away. At Toodyay, Northam, Bunbury, Geraldton, and Fremantle the floods did an immense amount of damage. The loss to public and private property estimated at £30,000. Several lives were lost, among them Lieut. Oliver, while attempting to cross the bridge at the Perth Causeway.

A small consignment of cotton, grown in the Victoria District, sent to England.

Pearl shells exported to the value of £250.

First export of flour from the Colony.

1863.

April and May.—First settlement of the North-West District by Messrs. Padbury, Wellard, Withnell, and others.

September.—Post Office Savings Bank established.

17th October.—The Perth Benefit Building Investment and Loan Society organised.

The Roman Catholic Cathedral in Perth completed.

1864.

Perth divided into three wards for municipal purposes.

23rd July.—The Roebuck Bay Pastoral and Agricultural Association, Limited, formed.

August.—The first shipment of wool from the Nor'-West (seven bales) arrived at Fremantle.

September.—Trinity Congregational Church opened for public worship.

9th November.—Messrs. Panton, Harding, and Goldwyer, who were among the first to sail for Roebuck Bay, while exploring the country towards La Grange Bay, were killed by the aborigines. The bodies were subsequently found by a party under the leadership of Mr. Maitland Brown, who, while returning to the coast, were attacked by a large body of natives. On the 17th May, 1865, the bodies were accorded a public funeral; the grave, in the old cemetery in East Perth, being marked by an imposing obelisk bearing a suitable inscription.

Towards the end of the year vessels sent out by the Camden Harbour Pastoral Association, organised in Melbourne, under the leadership of Mr. C. E. Broadhurst, left Victoria with settlers and stock for the newly-discovered pasture lands in the vicinity of Roebuck Bay and other localities on the Northern coast of the Colony.

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1865.

2nd May.—The "Warrior" called at Fremantle from Melbourne with settlers and stock for the Denison Plains Association.

Diphtheria makes its first appearance in the Colony.

1866.

The town of Roebourne proclaimed. Mr. R. J. Sholl appointed Government Resident.

At the end of the year 49 runs were held under lease, with an aggregate of 4,720,000 acres.

1867.

3rd March.—The schooner "Emma" left Nickol Bay for Fremantle, with 42 persons on board, and was never heard of after leaving port.

19th March.—The cutter "Brothers" foundered and was lost, with six persons on board. The "Lass of Geraldton," bound from Fremantle to Bunbury, capsized in a squall, and seven lives were lost, Mr. G. Shenton being one of the number.

24th May.—Corner-stone of Perth Town Hall laid by Governor Hampton.

24th October.—Foundation-stone of the new Perth Wesleyan Church laid by Governor Hampton.

1868.

10th January.—The "Hougomont"—the last convict ship—arrived at Fremantle.

February.—The wheat crop in the Victoria District—13,895 acres—owing to the rust, proved an almost total failure.

June.—Captain J. Harding, harbour master at Fremantle, and four of his crew were drowned by the capsizing of his boat.

13,000 bushels of wheat and 1,163 tons of flour exported this year.

1869.

1st January.—A waterspout formed in the river opposite Government House, doing much damage to the gardens on the banks.

3rd February.—H.M.S. "Galatea," having on board H.R.H. the Duke of Edinburgh, arrived at Fremantle.

9th February.—The first telegraph post fixed opposite the General Post Office, Perth, by the Colonial Secretary, Mr. F. P. Barlee.

21st. June.—The first telegraph line in the Colony, from Perth to Fremantle, formally opened. The work was done by private enterprise. Ultimately the line was acquired by the Government.

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Perth Town Hall.

Founded, 1867. Completed, 1870.

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1870.

31st. March.—Fourth Census of the Colony taken by Mr. William Knight, Registrar General.

8th April.—The new Wesleyan Church, Perth, opened for Divine service.

30th May.—The Perth Town Hall formally opened.

May.—The Legislative Council authorised the construction of telegraph lines from Perth to Albany, Bunbury, York, and Newcastle.—Severe drought in the Northern and Eastern districts; great losses of sheep, cattle, and horses.

5th December.—The first Legislative Council under Representative Government met.

25th December.—Hurricane in Nickol Bay; three pearling boats driven ashore and two lives lost.

1871.

January.—The Municipal Institutions Act passed, giving local government to Perth, Fremantle, and other towns.

The first posts of the Eastern District telegraph line placed by Governor Weld at Perth on the 13th of February, at York on the 14th of March, and at Northam on the 18th of March.

August.—The Weld Club founded.

23rd December.—Telegraphic communication opened with Guildford.—The Western Australian Timber Company opened the first railway line in the Colony, from Lockeville to Yoganup (12 miles in length).—The first Loan Bill, £100,000, was passed by the Legislative Council, for the purchase of telegraph lines, railway surveys, and other public works, but the amount was reduced by the Colonial Secretary, Earl Kimberley, to £35,000.

December.—Engineers were engaged to survey a railway line from Geraldton to Northampton.—Elementary Education Act passed.

1872.

3rd January.—Telegraph line opened for business at Newcastle.

8th February.—The Canning private tramway—nine miles in length—opened.

February.—Victoria District visited by a hurricane, rains and floods, doing great damage; carrying away houses, fences, destroying crops, etc., to the extent of thousands of pounds sterling.

10th March.—Arrival in Perth of Anthony Trollope, the celebrated novelist.

20th March.—Cyclone at Roebourne. Within half-a-hour all the buildings in the town levelled to the ground. Many persons injured. At the Nickol River about 5,000 sheep were lost in the

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flood, and many buildings were blown down. Several pearling boats driven ashore; one, the "Nellie," with two men on board, disappeared.

June and July.—Continuous rain for a period of six weeks throughout the Avon and Swan Valleys. On the 22nd July the Swan rose even higher than during the flood of 1862. Great injury done to bridges, jetties, gardens, etc., along the Avon and Swan Rivers. At Gingin an old settler was drowned.

26th December.—The telegraph line opened at Albany.

1873.

September.—Very heavy gale at Fremantle.

1874.

January.—The membership of the Legislative Council increased from 18 to 21; seven nominated by the Governor.

13th May.—Telegraph line opened to Geraldton, *viâ* Newcastle.

The question of Responsible Government was agitated and brought before the Legislative Council, but the Home Government interposing "prudent delays," the subject dropped.

22nd October.—First sod turned of the Geraldton-Northampton Railway by Governor Weld.

1875.

1st January.—The first telegraph post of the Eucla line erected at Albany by Governor Weld.

July.—A Bill passed the Legislative Council inaugurating the "Torrens'" system of land transfers.

1876.

1st January.—Violent gale at Exmouth Gulf; a number of pearling vessels wrecked and 69 lives lost.

18th April.—Six Fenian prisoners escaped from the Fremantle prison, and were picked up off Rockingham by the American whaler "Catalpa."

1877.

February.—Six vessels loading guano at the Lacepede Islands wrecked in a hurricane; six lives lost.

7th December.—Telegraph line opened to Beverley.

8th December.—Eucla telegraph line completed.

9th December.—Telegraph communication opened with South Australia.

1878.

5th April.—Telegraph line opened at Northampton.

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1879.

3rd June.—The 50th anniversary of the foundation of the Colony celebrated in Perth and other principal towns of Western Australia. First sod of the Eastern Railway turned by Governor Sir Harry Ord, at a spot adjacent to the William Street crossing.

26th July.—The Geraldton-Northampton Railway opened for traffic.

26th November.—Mr. Alex. Forrest and exploring party returned to Perth from an expedition in the Kimberley District.

1880.

2nd November.—The foundation-stone of the new St. George's Cathedral laid by Governor Sir Wm. Robinson.

Mr. S. H. Parker elected the first Mayor of Perth, *vice* Mr. G. Shenton, the last chairman of the Perth Council.

1881.

January.—Another cyclone on the coast, near Roebourne, wrecked a number of pearling vessels, and several lives were lost. A cyclone on the Ashburton wrecked buildings and fences, destroying over 1,000 sheep. A tidal wave which accompanied the cyclone swept completely over the Twin Islets, situated off the coast near Direction Island.

1st March.—The Fremantle-Guildford Railway (the first section of the Eastern line) formally opened by Governor Robinson.

1st April.—First mail train on the Eastern line.

3rd April.—Fifth Census of the Colony taken by Mr. L. S. Eliot, Registrar General.

16th May.—Arrival of their Royal Highnesses, Prince Albert Victor and Prince George of Wales, in Albany, in H.M.S. "Bacchante," which put in after suffering a very stormy passage round Cape Leeuwin. The vessel left on June 10. Their Royal Highnesses were hospitably and pleasantly entertained at Albany, but were unable to visit Perth.

December.—Contract let for the construction of the second section of the Eastern Railway, from Guildford to Chidlow's Well.

1882.

The membership of the Legislative Council increased from 21 to 24.

The Kimberley District first settled by pastoralists.

March.—Mr. A. McRae found a nugget of gold weighing 14dwts. while riding from Roebourne to Cossack.

April.—A hurricane at Cossack and Roebourne destroyed many buildings. Hundreds of sheep were drowned on the stations by the floods which followed.

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1883.

September.—The Legislative Council voted £2,000 towards the erection of Fremantle Town Hall.

Fremantle elected its first Mayor.

8th November.—The s.s. "Glenogil," being the first of the direct line of steamers despatched by Trinder, Anderson, and Co., and Bethell, Gwyn, and Co., from London to Fremantle, left London.

Between the months of November, 1883, and March, 1884, a very serious epidemical outbreak of measles took place, 95 deaths (48 males and 47 females) occurring from this cause.

1884.

11th March.—The Eastern Railway opened to Chidlow's Well.

August.—The steam service between Fremantle and Singapore commenced with the departure of the s.s. "Natal" from Fremantle, under contract between Bethell, Gwyn, and Co. and Trinder, Anderson, and Co. with the Western Australian Government.

22nd October.—Contract let for construction of the York section of the Eastern Railway.

25th October.—Contract for the construction of the Albany-Beverley Railway, on the land-grant system, let to Mr. Anthony Hordern, of Sydney.

1885.

21st April.—Contract let for construction of railway from York to Beverley.

29th June.—Eastern Railway formally opened to York.

5th August.—First service held in the (new) St. George's Cathedral.

First gold found by prospectors on the Margaret and Ord Rivers, in the Kimberley district, by Hall, Slattery, and party.

1st October.—Telegraph line from Geraldton to Roebourne opened.

17th November.—Telegraph line from Roebourne to Cossack opened.

1886.

February.—First meeting of Federal Council at Hobart.—Contract signed for construction of the Midland Railway from Midland Junction to Walkaway.—The first sod of the Geraldton-Greenough Railway turned by Governor Broome.

20th May.—Kimberley Goldfield proclaimed.

5th August.—Railway formally opened between York and Beverley by Governor Broome.

13th October.—The Northam Railway opened for traffic.

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20th October.—First sod on the Albany-Beverley Railway turned.

First Goldfields Act passed.

1887.

22nd April.—A cyclone off the Ninety-mile Beach—about 180 miles from Cossack—destroyed nearly the entire pearling fleet, with a loss of over 200 lives.

21st June.—The 50th anniversary of the Queen's reign celebrated in Perth and the other principal towns of Western Australia.—The Geraldton-Greenough Railway opened.

22nd June.—The Fremantle Town Hall opened.

30th November.—Cossack and Roebourne declared municipalities.

1st December.—The Telephone Exchange system inaugurated at Perth.

Gold quartz found by Mr. H. Anstey, at Eenuin, in the Yilgarn District, and in Golden Valley, in the same district, by Mr. Colreavy.—Southern Cross gold reefs discovered by Mr. Tom Riseley, while prospecting for the Phœnix Company.

1888.

1st January.—A telephone branch opened at Fremantle.

3rd January.—The Clackline-Newcastle Railway opened.—The Roebourne-Cossack Tramway built.

February.—Flood in the Greenough district. Several lives lost, sheep and cattle swept away, houses and a portion of the telegraph and railway line destroyed.

1889.

February.—Telegraph cable from Banjoewangie, Java, to Broome opened for business.

26th February.—Constitution Bill, in connection with Responsible Government, passed the Legislative Council.

May.—Perth Water Supply Works commenced.

1st June.—The Albany-Beverley Railway opened for traffic.

The telegraph line to Derby opened.

1890.

February.—Federation Conference met at Melbourne.

July.—The Enabling Bill, empowering the Queen to give assent to the Constitution Bill passed by the Legislative Council of Western Australia, passed the third reading in the House of Commons.

15th August.—Royal assent given to the constitution of the Colony of Western Australia.

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20th October.—Sir William Robinson—for the third time Governor of the Colony—arrived in Perth.

21st October.—The New Constitution proclaimed by Sir William Robinson.

October.—Perth Waterworks completed by the Perth Water Supply Company.

November.—Members of the Legislative Assembly, the first under Responsible Government, elected.

18th November.—The Albany-Denmark Railway completed.

24th December.—The Governor, Sir William Robinson, nominated the members of the Legislative Council under the new constitution, and called upon Mr. J. Forrest to form the first Ministry of Western Australia.

29th December.—The Forrest Government assumed office.

30th December.—The two Houses of Parliament sworn in. Sir T. Cockburn Campbell, Bart., appointed President of the Legislative Council, and Sir J. G. Lee Steere elected Speaker of the Legislative Assembly.

1891.

20th January.—First Parliament under Responsible Government opened by Governor Sir William Robinson.

February.—The Bunbury Railway Bill passed.

2nd March.—The first Federal Convention met at Sydney.

5th April.—Sixth Census of the Colony taken by Mr. W. A. Gale, Superintendent of Census.

9th April.—The Midland Railway declared open as far as Gingin.

Murchison Goldfield discovered by Connolly and Douglass.

1892.

February.—Telegraph line opened to Southern Cross.—Sir Malcolm Fraser appointed Agent General.

March.—Mr. A. P. Hensman appointed a Judge.—The Yilgarn Railway Bill passed.

August.—Rich discovery of gold made by Messrs. Bayley and Ford on the spot where the town of Coolgardie now stands.

7th September.—Contract let for the construction of the railway to Southern Cross.

September.—Owing to the death of Sir T. Cockburn Campbell, Mr. G. Shenton appointed President of the Legislative Council. —Mineral Lands Act passed.

16th November.—Operations commenced on the Fremantle Harbour Works, Lady Robinson tipping the first load.

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1893.

January.—Telegraph line opened to Wyndham, 2,125 miles from Perth.

19th March.—Contract let for the construction of the Geraldton-Mullewa Railway.

April and May.—An outbreak of small-pox took place, 46 cases (31 males and 15 females) occurring in Perth. Seven deaths occurred (5 males and 2 females). One case also occurred at Albany, and one fatal case at Fremantle.

8th September.—Railway from Perth to Bunbury formally opened by Governor Sir William Robinson.

13th October.—Constitution Act Amendment Act assented to.

16th November.—The railway from Boyanup to Minninup opened.

Federation Council met at Hobart.

The Homesteads Act passed.

By Act of Parliament, educational affairs placed under the control of a responsible Minister of the Government.

1894.

10th March.—Arrival at Albany of Sir Henry Parkes, G.C.M.G., on a visit to Western Australia. He left again on the 30th March.

25th March.—New Railway Station at Perth completed.

Second parliamentary elections held: Legislative Assembly in June, Legislative Council in July.

1st July.—The Southern Cross Railway opened for traffic.

21st November.—The Geraldton-Mullewa Railway completed.

November.—The Midland Railway completed. Telegraph line completed to Cue and Nannine.

Telegraphic communication opened between Southern Cross, Coolgardie, and Kalgoorlie.

Agricultural Bank Act passed.

1895.

January.—Federation Conference met at Hobart.

18th June.—Contract let for the construction of the railway from Southern Cross to Coolgardie.

November.—The Goldfields Act passed.—Act passed authorising the construction of a Royal Mint.

December.—Act passed abolishing State aid to denominational schools.

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26th December.—Railway from Boyanup to Busselton opened for traffic.

31st December.—Contract let for the construction of the railway from Mullewa to Cue.

1896.

23rd March.—Railway to Coolgardie formally opened by Governor Sir Gerard Smith.

March.—A Western Australian Society of Arts formed.

1st July.—Mahogany Creek deviation on the Eastern Railway opened.

8th September.—Railway from Coolgardie to Kalgoorlie opened.

23rd September.—Foundation-stone of the Perth Branch of the Royal Mint laid by Sir John Forrest.

September.—An Act passed authorising the construction of the Mundaring Weir and other works for supplying Coolgardie with water.—Contract for the construction of the Collie Railway let.—Telegraphic communication opened with Kurnalpi, Mt. Magnet, Yalgoo, Dundas, Mallina, and Pilbara.

8th October.—Constitution Act Amendment Act assented to.

1st December.—Contract let for construction of the Donnybrook-Bridgetown Railway.

December.—The Great Southern Railway from Albany to Beverley purchased by the Government.

1897.

8th January.—The Great Southern Railway formally taken over by the Government.

11th January.—First Exhibition of the W.A. Society of Arts opened by the Premier.

22nd March.—Federal Convention met at Adelaide.

27th April.—The Premier (Sir John Forrest) tipped the first load of stone for the Bunbury Breakwater.

4th May.—The steamer "Sultan," W.A.S.N. Co., 1,270 tons register (2,062 gross), steamed into the new harbour at Fremantle and discharged at the wharf.

21st June.—The 60th anniversary of Queen Victoria's reign celebrated in Perth and the other principal towns of Western Australia.

28th June.—Duplication of Eastern Railway from Fremantle to Guildford completed.

Third Parliamentary elections held in June and July.

12th August.—Cold Storage Depôt opened to the public.

17th August.—Contract let for the construction of the railway to Menzies.

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17th August.—Contract let for the construction of the Greenhills Railway. Third Parliament met for the first time.

28th August.—Telegraph line opened at Lawlers.

1st September.—Perth Market opened.

24th September.—Second session of Federal Convention met at Sydney.

8th October.—The s.s. "Cornwall," 3,554 tons register (5,500 gross), drawing 19 feet, and with a keel length of 420 feet, berthed at the South Quay.

23rd December.—The Mining on Private Property Act became a law.

1898.

January.—A difference between the alluvial miners at Kalgoorlie and the Manager of the Ivanhoe Venture Gold Mine led to serious disturbances, the unrest extending to other places on the goldfields. The Goldfields Act of 1895, under Section 36, gave the alluvial miners the right to search for alluvial gold on leases, with certain restrictions. The principal question in dispute was whether there was a reef on the lease of the Ivanhoe Venture Syndicate or not. The leaseholders considered it a great hardship that the Act confirmed the existence of dual titles, those of the leaseholders and those of the claimholders. The alluvial miners, on the other hand, held that they had a moral and legal right to the alluvial gold, at whatever depth it was found. Before a decision on the case was given in the Warden's Court, the Government passed a regulation limiting the depth to which alluvial could be worked to 10 feet. The diggers were much incensed at this regulation, which they called "the ten-feet drop." As regards the question of the reef, the Government Geologist reported that there was as yet no proof of its existence. The Warden's decision in the case went against the alluvial miners. The latter, however, paid no heed to this decision, and continued to enter on the lease. Relations between the syndicate and the miners then became so strained that several of the latter were eventually imprisoned. On the 24th March, Sir John Forrest visited Kalgoorlie to meet the delegates of the alluvial miners, and hear their grievances; but on his declining to address the crowd which had gathered outside the hotel where the conference took place, some of the more excitable spirits became unruly, and on his way to the station the Premier was somewhat roughly hustled, fortunately without any serious results. After much further friction, the Ivanhoe Venture Syndicate agreed to take a test case into the Supreme Court. The trial took place in August, and the decision of the Court was in favour of the alluvial miners. Petitions were then forwarded to the Government by various mining companies, asking for the abolition of the dual title, In consequence of this a Royal Parliamentary Commission was appointed, which came to the conclusion that the dual title undoubtedly inflicted a great hardship on the leaseholder. The new Mining Act (62 Vict., No. 16) was consequently passed, Sections

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10 and 11 of which define the relations between leaseholders and claimholders in a manner calculated to avoid a conflict between their respective interests.

20th January.—Third session of the Federal Convention met at Melbourne.

1st February.—The Boulder Railway completed.

23rd February.—The first mail steamer, "The Prinz Regent Luitpold," belonging to the Norddeutscher-Lloyd Company, called at Fremantle, and was berthed in the new harbour.

22nd March.—The railway to Menzies formally opened by the Governor.

28th April.—Sir Malcolm Fraser resigned the Agent Generalship, and the Hon. E. H. Wittenoom was appointed in his stead.

15th June.—The Kanowna Branch Railway completed.

17th June.—The Fremantle markets opened.

30th June.—Mullewa-Cue Railway and Collie Coalfields Railway completed.

July.—A Bill providing for Free Education introduced in the Legislative Assembly.—Favourable reports received from Prof. McCoy, of the Melbourne University, testifying to the great commercial value of Collie coal.—Tenders called for the erection of a butter factory at Busselton.

6th July.—A motion adopted by the Legislative Assembly for the appointment of a Royal Commission to inquire into the penal system of the Colony.

8th July.—Royal Proclamation published establishing a branch of the Royal Mint in Perth.

1st September.—The Greenhills-York Railway formally opened.

19th September.—Sir George Grey died in England, at the age of 86. Sir George Grey was exploring in this Colony during 1837 and 1839.

1st October.—The new waterworks at Fremantle completed.

4th October.—The third reading of the Goldfields Water Supply Bill passed the Legislative Assembly.

10th October.—Telegraph office opened at Peak Hill.

17th October.—The Zoological Gardens at South Perth formally opened by the Governor, Sir Gerard Smith.

20th October.—The amended Mining on Private Property Bill passed in the Legislative Council.

30th October.—The N.D.L. Co's. s.s. "Friedrich der Grosse," 10,500 tons, drawing 23 feet of water, berthed at the Sout Quay.

1st November.—The Government service of trains on the Donnybrook-Bridgetown extension of the South-Western Railway commenced.

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25th November.—The first butter factory in the Colony started at Busselton.

1st December.—The Bridgetown Railway formally opened.

16th December.—A public meeting held in Perth, at which it was resolved to inaugurate an institution for the treatment and comfort of incurables.

17th December.—The foundation-stone of the Victoria Institute and Industrial School for the Blind at Maylands laid by the Governor, Sir Gerard Smith.

Funds amounting to £2,700 were subscribed towards the establishment of a children's Hospital in Perth.—A Labour Bureau, initiated by the Government, was opened in Perth.—Valuable presents of red and fallow deer were made by Her Majesty the Queen to the recently-established Zoological Gardens at South Perth.—The Government accepted tenders for the supply of pipes for the Coolgardie Water Scheme.—Diamonds were reported to have been found at Nullagine, in the North-West district.—The Government accepted a tender to lease the Wallsend coal mine at the Collie.—Reports were received from Eucla of serious inroads by rabbits in that neighbourhood.—A large number of German settlers from South Australia took up selections at Katanning and other localities on the Great Southern Railway.—Several of the male inmates of the Fremantle Lunatic Asylum were transferred to the new asylum at Whitby Falls.

1899.

13th January.—At a meeting of the Fremantle Municipal Council a Resolution was passed to invite offers for a combined scheme of electric light and tramways.

17th January.—The Premier (Sir John Forrest) and other delegates to the Federal Council left Albany for Melbourne.

20th January.—The Perth Tramway Scheme was formally approved by the City Council. The first sod of the Hay Street line was turned by Miss Forrest, daughter of the Mayor, on the 30th January.

24th January.—The first session of the Federal Council opened in Melbourne.

29th January.—First Hospital Sunday in Perth.

21st February.—"General" Booth of the Salvation Army, visited the Colony.

March.—The Penal Commission made their final progress report to the Government.—A new ballroom and several other important additions to Government House were completed.

21st March.—The Coolgardie Exhibition was opened by the Governor.

4th April.—The first annual conference of the State School Teachers' Association of Western Australia held.

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11th April.—The first Trades Union Congress in Western Australia held at Coolgardie.

19th April.—The Queen's Hall, Perth, opened by the Hon. Sir John Forrest.

April.—Rich discoveries of tin made in the Pilbara district.

5th May.—Destructive fire at Coolgardie, involving the loss of buildings and other property to the value of over £3,000.

16th May.—A public meeting held in the Perth Town Hall passed a resolution sympathising with the *Uitlanders* in the Transvaal in their political grievances, and authorised the transmission of this resolution to the Secretary of State for the Colonies.

19th May.—A Chamber of Manufacturers for Western Australia formed, in pursuance of a resolution passed at a meeting of manufacturers and others held in Perth.

14th June.—H.M.S. "Royal Arthur," Rear-Admiral H. L. Pearson, arrived at Fremantle from Sydney, proceeding to a berth at the quay in the river.—The Penal Commission presented its final report.—The Paris Exhibition Commission appointed.

21st June.—Sir Gerard Smith, K.C.M.G., the Governor of the Colony, performed the ceremony of declaring the Perth branch of the Royal Mint opened.

June.—Captain Angus, deputed by the P. and O. Company to report on the newly-constructed harbour basin at Fremantle, arrived from England. Subsequently Captain Angus reported favourably on the facilities for the accommodation of deep-sea steamships afforded by the new harbour basin.—An experimental nursery farm was successfully established by the Forests Department at Drakesbrook, on the South-Western Railway.

12th July.—Snowstorms in various parts of the Colony reported. At Mount Barker several inches were recorded.—The barques "City of York" and "Carlisle Castle," from San Francisco and Glasgow respectively, were wrecked near Fremantle, the former vessel on the West side of Rottnest Island, the latter on Coventry Reef, lying a few miles Southward of Garden Island. The "City of York" carried a crew of 25 all told; of these Captain Jones and 11 others perished. The crew of the "Carlisle Castle" numbered 22 persons, all of whom were drowned.

17th August.—The Legislative Council, by eight votes to six, declared in favour of extending the franchise to women.

8th September.—The "Braeside" station, in the Pilbara district, raided by wild natives. Dr. Vines killed, and several others wounded.

24th September.—Electric cars run for the first time on the Hay Street tram line.

4th October.—The first West Australian Manufacturers' Industrial Exhibition in Perth opened by Lady Smith.

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9th October.—Foundation-stone of Sailors' Rest, Fremantle, laid by Sir John Forrest.—Queen's Gardens at East Perth opened by the Mayor.

11th October.—The first annual conference of the West Australian Chamber of Manufacturers held in Perth.

25th October.—A shock of earthquake experienced at Wyndham.

October.—Satisfactory reports were received from England of various tests made with Collie coal.—The Public Education Bill, providing for compulsory and free education in the State schools, came into force.

1st November.—First annual show of the Amateur Horticultural Society of Western Australia opened in Perth by Sir A. C. Onslow, Kt.

2nd November.—Foundation-stone of the Deaf and Dumb Institution, at Cottesloe Beach, laid with Masonic rites by the Governor, Sir Gerard Smith.

4th November.—The Government having decided, in October, to organise and equip a corps of infantry volunteers, 120 strong, to proceed to Cape Colony and co-operate with the Imperial troops in subduing the Boers, the corps proceeded from Perth to Albany by railway on this date, and embarked by the s.s. "Medic," on 7th November. The command of the company was entrusted to Captain H. G. Moor, R.A., of the Albany forts, with the rank of Major. Dr. G. F. McWilliams took medical charge, with the rank of Major The other commissioned officers were Lieuts. H. F. Darling and F. Parker, and Second-Lieutenant J. Campbell. On board the "Medic" were also contingents from Victoria, South Australia, and Tasmania. Immediately following the departure of the s.s. "Medic," Sir John Forrest received telegrams from the Premiers in the Eastern Colonies regarding the proposal to supply a second contingent for service in South Africa.

December.—An official return showed that the valuation of the city of Perth for the year was as follows:—Capital value, £3,702,810; annual value, £290,275.—News received of the murder of Captain Reddell and portion of the crew of the brigantine "Ethel," off Roebuck Bay, on the 19th October.—Highly satisfactory reports on samples of Western Australian wheat received by the Secretary for Agriculture from American experts at the Philadelphia Commercial Museum.—The Imperial authorities accepted the offer to send twenty trained nurses from this Colony to South Africa free of cost to the British Government.—Arrangements were entered upon for despatching to Cape Colony a second contingent of troops (mounted infantry), to co-operate with the British forces in South Africa. The strength of the corps was limited to 130 officers and men. Major H. L. Pilkington, formerly Captain 21st Hussars, was placed in charge. The other commissioned officers were Captain R. T. McMaster, Lieut. S. Harris, Lieut. S. Inglis, Lieut. J. De Castilla; and Captain J. M. Y. Stewart, M.O.

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1900.

3rd January.—At a conference held at Kalgoorlie in connection with the "Separation" movement—*i.e.*, the agitation for creating the Goldfields districts a separate province—a manifesto setting forth the grounds on which such separation was held to be desirable and justified was formulated and agreed to.

6th January.—The extension of the electric tramway system to Subiaco completed.

24th January.—The steam yacht "Sunbeam," with Lord Brassey on board, bound for England, called at Fremantle. The "Sunbeam" resumed her voyage, *viâ* Java, on the 26th January, when Lady Brassey rejoined the ship's party, having landed at Albany and journeyed to Perth by train.—Premiers' conference in Sydney on Federal and other questions.

January.—A strike among the drivers and firemen on the railways of the Colony, consequent on the dismissal of the Loco. Superintendent (Mr. R. B. Campbell) caused serious delays and inconvenience for several days.—Strict precautions taken at the various seaports of the Colony to guard against the introduction of bubonic plague.—The dignity of K.C.M.G. was conferred upon the Hon. Sir J. G. Lee Steere, Speaker of the Legislative Assembly.

2nd February.—The arrival of the transport "Surrey" at Fremantle, for the purpose of conveying the Second Contingent to South Africa, was marked by a great patriotic demonstration.

6th February.—The submarine cable connecting Rottnest with the mainland laid.

9th February.—First casualty among the West Australian troops in South Africa, at Slingersfontein.

18th February.—Mr. S. H. Parker, Q.C., specially appointed by the Government to represent the Colony in London during the passage of the Commonwealth Bill through the Imperial Parliament, left for England in the R.M.S. "Himalaya."

20th February.—First annual session of the Grand Lodge of the Independent Order of Oddfellows of Western Australia opened at Coolgardie.

26th February.—Conference of Government Statisticians respecting matters in connection with the Census of 1901, held in Sydney, Mr. Malcolm A. C. Fraser, Registrar General, representing Western Australia.

February.—The Minister for Lands decided to make regular shipments of fresh fruit, to the Agent General in London, during the fruit season.—The Government decided upon organising a third Contingent, 100 strong, to be distinguished as the "Bushmen's Corps," for service in South Africa; Major H. G. Vialls (late Capt.

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R.O's., West Yorkshire Regiment), was entrusted with the command; the other commissioned officers were Capt. H. E. Hurst, Lieuts. C. H. Ord, A. F. Thunder, R. R. C. Vernon, and M. R. P. W. Gledhill; and Capt. F. J. Ingoldby, M.O.—A pine plantation was successully established at Bunbury by the Woods and Forests Department.—Mr. F. W. Holder, the Premier of South Australia, promised Sir John Forrest that, the Commonwealth once established, and South Australia and Western Australia both having joined the federation, he would, simultaneously with the passage of a similar Bill in Western Australia, bring forward a Bill in South Australia, assenting to a transcontinental railway line being constructed stage by stage.

14th March.—The Third Contingent, or "Bushmen's Corps," for service in South Africa, embarked at Fremantle by the transport "Maplemore." Immediately following the despatch of the "Maplemore" recruiting for the Imperial Bushmen's Corps, being the Fourth Contingent to be despatched to the assistance of the Imperial forces, was actively entered upon. The strength of this corps was restricted to 125.

17th March.—A petition from the Eastern Goldfields Reform League was presented to the Governor for transmission to the Queen. The petition, which is said to have contained 27,733 signatures, prayed that the Eastern Goldfields might be formed into a separate colony. A petition from Albany, praying for the inclusion of that district, the Plantagenet, in the proposed new colony, was also presented to the Governor.

20th March.—First Wesleyan Methodist Conference of Western Australia opened in Perth.—Deputation to the Premier from the W.A. Workers' Association, urging the introduction of compulsory arbitration, and a reduction on the railway freights on ore.

22nd March.—His Excellency the Governor, Sir Gerard Smith, and Lady Smith took their departure for England in the N.D.L. Co.'s s.s. "Barbarossa." Sir Alexander Campbell Onslow, Kt., the Chief Justice of the Colony, was sworn in as Administrator on the following day.

24th March.—The "Sailors' Rest," at Fremantle, opened by the Premier.

26th March.—Death of Lieut.-Colonel G. B. Phillips, Commissioner of Police. Colonel Phillips entered the Civil Service in the year 1852.

March.—The Government placed a contract for the supply of pumping machinery for the Coolgardie Water Scheme with Jas. Simpson & Co., Ltd., at £241,750.—The Governor, Sir Gerard Smith, received a cable message from the Imperial authorities, offering commissions in the Royal Artillery and Infantry to Western Australian officers.—The erection of a Central Fire Station in Perth commenced.

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April.—The bubonic plague made its appearance at Fremantle, and two fatal cases occurred.—An unusually heavy fall of rain was recorded on the Murchison. In the neighbourhood of Nannine a huge lake, many feet in depth, completely isolated the township for several days.

8th May.—The transport "Manhattan," having embarked the Fourth Contingent, The Imperial Bushmen, sailed from Fremantle for Beira. The command of the corps was given to Major James Rose; the other commissioned officers were Capt. C. C. Newland, Lieutenants C. A. Barnes, E. Vernon, F. G. Hume, and E. R. Williams, with Surgeon-Captain W. Gibson in medical charge.

17th May.—A special meeting of Parliament summoned, in order to give both Houses another opportunity of considering the question of a reference of the Commonwealth Bill to the people.

24th May.—The title of K.C.M.G. conferred upon the Hon. E. H. Wittenoom, Agent General for Western Australia.

7th June.—The Federal Enabling Bill passed the Legislative Council.

June.—A contingent of eleven nurses proceeded to Cape Colony for service in the war. Their passages were provided by public subscription.—The Government sanctioned the removal of Western Australian exhibits from Paris to Glasgow, for the exhibition to be held in that city in 1901.

9th July.—The Royal assent was given to the Australian Commonwealth Bill.

19th July.—Execution at Fremantle of two of the ringleaders in the "Ethel" tragedy near Broome (October, 1899).—Major Moor, commanding the first Western Australian contingent in South Africa, and Private M. W. Collett, of the same corps, killed at Palmietfontein.

31st July.—The Federation Referendum Vote taken throughout the Colony. In favour of federation, 44,800; against, 19,691; majority in favour, 25,109.

13th August.—The Orient Co.'s s.s. "Ormuz," the first English homeward bound mail steamer to enter the new harbour at Fremantle, arrived from Adelaide.

19th August.—Death of Sir Malcolm Fraser, K.C.M.G., in England.

20th August.—The P. & O. Co.'s s.s. "India" arrived at Fremantle from Adelaide.

1st September.—The new lighthouse on the N.E. corner of Rottnest Island lighted for the first time.

12th September.—The P. & O. steamer "Himalaya," the first English outward bound mail steamer to make Fremantle the port of call, arrived and berthed at the South Quay.

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17th September.—Heavy snowstorms in several localities in the extreme Southern portions of the Colony.—The Government Refrigerating Works in Perth opened for the reception of produce.

21st September. — Telegraphic communication extended to Mount Sir Samuel.

28th September.—The electric tram system in Perth completed to Highgate Hill.

September.—A marble cross erected in the Church of England portion of the Fremantle Cemetery to the memory of those who perished in the wrecks of the "City of York" and "Carlisle Castle" (July, 1899).

10th October.—The Legislative Council passed the Public Service Bill.

September and October.—Several new caves in the limestone hills, between Quindalup and Cape Naturaliste, discovered and explored.

2nd December.—H.M.S. "Royal Arthur" arrived at Fremantle for the purpose of conveying the Governor General Elect, Earl Hopetoun, to Sydney upon his arrival from Colombo by the R.M.S. "Victoria." In consequence of sickness, Lord Hopetoun was compelled to continue his voyage in the "Victoria," which left Fremantle for Adelaide on the 6th December.

15th December.—Arrival at Fremantle of the transport "Britannic," conveying Imperial troops to Sydney to take part in the proceedings connected with the proclamation of the Commonwealth. The troops disembarked and marched through Perth and Fremantle. They left the same day.

24th December.—Sir John Forrest, G.C.M.G., accepted the portfolio of Postmaster General in the first Federal Ministry.

29th December.—Death, in Rome, of Bishop Rosendo Salvado, who founded the New Norcia Native Mission in 1846.

December.—A Bill passed providing for the payment of members of Parliament.

1901.

1st January. — Establishment of the Commonwealth of Australia.

22nd January.—Death of Her Majesty Queen Victoria.

30th January.—Arrival from Adelaide of the French mail steamer "Polynesien," the first vessel of the M.M. line to call at Fremantle.

12th February.—Resignation of Sir John Forrest as Premier. Mr. George Throssell assumed the Premiership.

27th February.—Mr. H. B. Lefroy appointed Agent General, *vice* Sir E. H. Wittenoom, K.C.M.G., resigned.

6th March.—Departure of the s.s. "Devon" for Natal with the Fifth Western Australian Contingent. The command was given to Captain H. F. Darling, the other officers being Surgeon-captain I.

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J. Flynn (in medical charge), Lieuts. A. J. Bessell-Browne, H. M. Downes, J. S. Scott, A. Davies, J. L. Ochiltree, C. Griffiths, J. F. Messer, N. Sherrard, H. D. Forbes, A. A. Forrest, and C. W. Williams. The corps was limited to a strength of 206 men of all ranks. Chaplain E. H. Collick accompanied the contingent with the rank of Captain.

7th March.—The volunteers for the Sixth Contingent for service in South Africa went into camp at Karrakatta. Officers: J. Campbell, captain commanding; Captain E. R. Williams, Lieuts. W. H. Young, J. F. Hawkins, H. E. Bardwell, A. E. Maley, F. W. Bell, H. B. McCormick, R. Clifton, S. S. Reid, C. E. Woodrow, R. E. Wright; Dr. F. B. Reid in medical charge as Surgeon-captain.

8th March.—Sir John Forrest returned unopposed for the Swan, in the first Federal Parliament.

29th March.—General Federal elections. Elected for Senate: Messrs. Staniforth Smith, A. P. Matheson, G. F. Pearce, De Largie, E. A. Harney, and N. K. Ewing. House of Representatives: Sir John Forrest and Messrs. J. M. Fowler, E. Solomon, J. W. Kirwan, and Mahon.

30th March.—The s.s. "Karrakatta" wrecked on the N.W. coast.

31st March.—Seventh census of Western Australia taken under the direction of Mr. Malcolm A. C. Fraser, Superintendent of Census.

4th April.—Departure from Perth for Melbourne of Sir John Forrest, to take up the position of Minister of Defence in the Commonwealth Government.

10th April.—The troopship "Ulstermore," with the Sixth Contingent, left Fremantle for Durban. The contingent numbered 120 of all ranks.

30th April.—The Royal Yacht "Ophir," with their Royal Highnesses the Duke and Duchess of Cornwall and York on board, called at Albany, and Sir Arthur Lawley, the new Governor of Western Australia, who was also in the "Ophir," came up to Perth, where Lady Lawley had arrived the previous week.

1st May.—Sir Arthur Lawley sworn in as Governor of Western Australia.

9th May.—Federal Parliament opened by the Duke of York.

16th May.—Party under Mr. J. Muir set out from Bulong to make a flying survey of the route to Eucla for the trans-Australian railway.

27th May.—Mr. Throssell having resigned as Premier, Mr. G. Leake formed a new Ministry.

17th June.—First section of the Menzies-Leonora line of railway (18 miles) opened for traffic.

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20th June.—Death of Mr. A. Forrest, M.L.A., C.M.G., well-known as an explorer, and former Mayor of Perth.

4th July.—The W.A.G.R. Association called out its men, and caused a railway strike, which resulted in almost entire suspension of traffic.

16th July.—Mr. C. Y. O'Connor reported to the Federal Parliament that the trans-Australian railway would cost £4,400,000, and calculated that it would speedily pay expenses.

20th July.—H.M.S. "Ophir," with their Royal Highnesses the Duke and Duchess of Cornwall and York on board, anchored in Albany. The Duke and Duchess arrived in Perth by train on the following day. On the 22nd they were officially welcomed in Perth, and a reception was held at Government House. On the 23rd the festivities included a Levee at Government House, the Knighting of Rear-Admiral Beaumont, the laying of the foundation stone of the Fallen Soldiers' Memorial, a review of the military forces, and the naming of the "King's Park" and "May Drive." On the 24th, the unveiling in the Anglican Cathedral of a memorial tablet to the deceased soldiers of the West Australian contingents in South Africa, the laying of the foundation stone of the new wing of the Museum, the presentation to their Royal Highnesses of a casket containing auriferous specimens at the Mint, and a Garden Party at Government House. On the 25th, the State School Children's welcome to their Royal Highnesses in the Government House Domain, a visit to the Zoological Gardens, and the presentation to their Royal Highnesses of an album of views of South Perth and Gardens. On the 26th, the departure from Perth in the "Manx Fairy," the reception at Fremantle, and the naming of the "Victoria Quay." In the afternoon of that day the "Ophir," with the Royal visitors, left for Cape Town, South Africa.

7th August.—Trades Congress at Kalgoorlie.

14th August.—A Civil Service Association formed at a meeting held in Perth.

28th August.—Resignation of Sir A. C. Onslow, Kt., as Chief Justice of Western Australia. He was succeeded by Mr. E. A. Stone.

8th October.—Federal Budget and protectionist tariff disclosed in the House of Representatives.

9th October.—Lieutenant Bell, of the 6th W.A.M.I., awarded the Victoria Cross.

30th October.—Laying of the Cape-Australian cable completed, connecting Perth with South Africa.

9th November.—The Leake Government defeated on a No-confidence motion by the leader of the Opposition, mostly in connection with the general administration of the Railways.

9th November.—The Duke of Cornwall and York created Prince of Wales.

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12th November.—Mr. Piesse sent for to form a Cabinet.

18th November.—Mr. Piesse failed to form a Cabinet. Mr. Morgans sent for.

19th December.—Captain of N.D.L. mail steamer "Neckar" arrested at Fremantle for breach of the Federal Customs Act.

20th December.—Mr. Morgans and his Ministry resigned, and Mr. Leake was sent for.—Captain of "Neckar" released from prison on giving security for his fine.

21st December.—The Federal Government decided to send further troops from Australia to South Africa.

23rd December.—Mr. Leake's new Ministry sworn in.—Lord Hopetoun, the Governor General of Australia, arrived in Perth on a visit.

1902.

9th January.—A memorial unveiled in the Mayor's Park at Fremantle for the late Honourable William Edward Marmion, who was one of the first Ministers under responsible Government.

15th January.—The Governor-General of the Commonwealth (the Earl of Hopetoun) left for the Eastern States. During his stay in Western Australia Lord Hopetoun had visited Collie, Bunbury, Kalgoorlie (where, on the 10th January, he drove the first spike in connection with the Kalgoorlie Tramway), and Coolgardie.

28th January.—Teachers' Training College opened at Claremont.

17th February.—Interim report of the Coolgardie Water Scheme Select Committee presented to Parliament.

26th February.—Departure of the First Federal Contingent from Fremantle.

28th February.—Temporary stoppage of work in connection with the Coolgardie Water Scheme.

10th March.—Death of Mr. Charles Yelverton O'Connor, C.M.G., Engineer-in-Chief.

31st March.—Successful trial of pumps in connection with the Coolgardie Water Scheme.

18th April.—Progress of the Coolgardie Water Scheme; the water reached Northam.

20th April.—The Western Australian unit of the Second Federal Contingent embarked for South Africa.

29th April.—Portions of the Fifth and Sixth Contingents returned from South Africa.

12th May.—The Commonwealth Coronation Contingent left for England.

21st May.—Outbreak of bubonic plague at Fremantle.

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2nd June.—The foundation stone of the new Law Courts laid by His Excellency the Governor, Sir Arthur Lawley.

20th June.—Official opening of the Menzies-Leonora Railway.

24th June.—Death of the Honourable George Leake, K.C., Premier of Western Australia.

26th June.—The title of Kt. Bach. conferred on Chief Justice Stone.

29th June.—Upon Mr. Kingsmill failing to form a Ministry, Mr. W. H. James, M.L.A., was sent for.

1st July.—The James Ministry sworn in.

2nd July.—The Governor-General of the Commonwealth, the Earl of Hopetoun, left Melbourne for London.

16th July.—Intimation received of His Excellency Sir Arthur Lawley's appointment to the Lieutenant-Governorship of the Transvaal.

17th July.—Lord Tennyson sworn in as Acting Governor-General.

22nd July.—The Report of the Coolgardie Water Scheme Commission was laid on the table of the House of Assembly.

31st July.—The foundation stone of the new Parliament Houses was laid by His Excellency the Governor, Sir Arthur Lawley.

5th August.—Civic farewell in Perth to Sir Arthur and Lady Lawley.

8th August.—Date of the King's message to his people, on the eve of his coronation, and after a severe illness.

14th August.—Departure to the Transvaal of His Excellency, Governor Sir Arthur Lawley.

23rd August.—Woodman's Point Lighthouse opened.

6th September.—The Fallen Soldiers' Memorial in the King's Park, Perth, unveiled.

24th September.—Return of the Coronation contingent.

6th October.—Death of Mrs. S. P. Phillips, the first white woman born in Western Australia.

7th October.—Death of Mr. Justice Alfred Peach Hensman.

21st November.—Lord Tennyson appointed Governor-General of the Commonwealth of Australia for twelve months.

26th November.—Death of Mr. Justice Frederick William Moorhead.

15th December.—Deputation in London to Mr. H. B. Lefroy, Agent General for Western Australia, from representatives of mining companies interested in Western Australia, petitioning for reduction of railway rates on machinery and stores; for a better

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title to mining leases; for greater facilities for working consolidated holdings, and for the repeal of the Companies' Duties Act, or, as an alternative, for a percentage to be levied not on profits, but only on the dividends payable in any one year.

20th December.—Parliament prorogued.

1903.

9th January.—Lord Tennyson sworn in as Governor-General of the Commonwealth.

22nd January.—The pumping machinery of the Coolgardie Water Supply Works was started at Mundaring Weir, Lady Forrest performing the ceremony.

24th January.—Opening of the Coolgardie Water Supply at Coolgardie and Kalgoorlie, by Sir John Forrest, in the presence of a large gathering of Federal and State guests.

26th January.—Fresh outbreak of bubonic plague at Fremantle.

27th February.—Industrial agreement between the Railway Department and the Western Australian Amalgamated Society of Railway Employees signed.

4th March.—Contract for the construction of William Street Railway Bridge signed.

5th March.—Conference in Melbourne of the State Engineers-in-Chief to consider the scheme of a Transcontinental Australian Railway.

24th March.—Admiral Sir Frederick George Denham Bedford K.C.B., the new Governor of the State, arrived, with Lady Bedford and Miss Bedford.

3rd April.—Arrival of the Japanese cruiser "Itsukushima" at Fremantle.

21st April.—Arrival at Fremantle of Rear-Admiral Kamimura on the Japanese cruiser "Matsushima," accompanied by the cruisers "Hashidate" and "Itsukushima," the latter having re-joined the other vessels since her first arrival at Fremantle. The three cruisers, after an apparently enjoyable visit, left on the 30th April.

24th April.—Outbreak of bubonic plague at Bunbury.

24th May.—Fresh outbreak of bubonic plague at Fremantle.

2nd June.—The remains of the late Bishop Salvado, founder of the New Norcia Aboriginal Native Mission, having been conveyed from Rome, where he died, reached Fremantle.

15th July.—Explosion at the Powder Magazine near Fremantle, the caretaker, Thomas Whelan, being killed.

19th July.—Arrival at Fremantle of the German cruiser "Condor."

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30th July.—The State Engineers-in-Chief in conference recommended the construction of the Trans-Australian Railway *viâ* Tarcoola, with a 4ft. 8½in. gauge; their estimate of the cost was £4,559,000.

3rd August.—Mr. Edward Timothy Hooley, one of the early pioneers of Western Australia, died at Vevey, in Switzerland.

7th August.—Lord Northcote was appointed to succeed Lord Tennyson as Governor-General of the Commonwealth.

25th August.—The Hon. B. C. Wood, M.L.C., died suddenly, while at Mandurah.

28th August.—The Memorial to the late Alexander Forrest unveiled in the Public Gardens in Mount Street.

18th September.—The Hon. Joseph Chamberlain resigned his position as Colonial Secretary in the Imperial Government.

20th September.—The Mundaring Reservoir overflowed for the first time; the quantity of water stored was estimated at 4,600 million gallons.

22nd September.—Conference of Government Statisticians respecting matters bearing upon uniformity of statistics of population of the federated States, held in Melbourne, Mr. E. G. Stenberg, Chief Compiler of Statistics, representing Western Australia.

23rd September.—Sir Edmund Barton resigned as Prime Minister of the Commonwealth. Mr. Alfred Deakin was called for to form another Ministry.—Sir Samuel Griffith was appointed Chief Justice, and Sir Edmund Barton and Mr. R. E. O'Connor Puisne Judges of the Federal High Court.

19th October.—The new Lighthouse opened at Bunbury.—Unveiling of the Queen's Statue in the King's Park, Perth.

30th November.—The Judges of the Federal High Court arrived in Western Australia.—Sir George S. Clarke, the Governor of Victoria, visited Perth.

1st December.—Death of Sir James George Lee Steere, K.C.M.G., Speaker of the Legislative Assembly.

2nd December.—Trouble in the Western Australian Timber Industry; the Award of the Arbitration Court ignored by the men.

14th December.—Arrival at Fremantle of the Governor-General, Lord Tennyson, and Lady Tennyson.

10th December.—Departure of the Federal Chief Justice and Sir Edmund Barton from Western Australia.

15th December.—Departure of the Governor-General, Lord Tennyson, from Fremantle, for Melbourne.

18th December.—Departure from London of Lord and Lady Northcote for Australia.

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4.—EXPLORATION IN WESTERN AUSTRALIA.

"Since the time of its first foundation Western Australia has never given up the subject of exploration. Unlike the other colonies, which have always gone into the matter by fits and starts, there have been always continuous expeditions from Perth."

* * * * * * * * *

"The first of the colonies to wake up again to the importance of examining the interior was, as usual, the indefatigable Colony of Western Australia."

E. TENNISON WOODS.

In 1829, from the 17th to the 30th November, Mr. Alexander Collie and Lieutenant William Preston, R.N., explored the country along the coast from Cockburn Sound to Geographe Bay.

On the 15th December Dr. J. B. Wilson, R.N., made an exploration of the country near King George Sound, and discovered the River Denmark.

In 1830, on the 22nd March, Lieutenant J. S. Roe, R.N., Surveyor General, started on an exploring expedition in the vicinity of Cape Naturaliste, Port Leschenault, and between the Collie and Preston Rivers.

On the 29th of the same month Governor Stirling and Captain Currie explored the vicinity of Cape Leeuwin, and determined on the site of Port Augusta.

From the 31st July to the 15th August, Ensign R. Dale (63rd Regiment) explored the country to the East of the Darling Range.

From the 6th to the 22nd September, Lieutenant Erskine explored from Perth to the East of the Darling Range, and in the same month Captain J. Molloy was exploring in the neighbourhood of the Blackwood River.

From the 28th October to the 7th November, Mr. R. Dale made a second exploration East of the Darling Range. Leaving Kelmscott and passing Mount Dale, he struck the Avon, which river he followed up to the site of the present town of York. Having explored the country as far East as Mount Caroline (longitude 117° 29′ East) he turned South and recrossed the Avon, returning by his former route.

From the 23rd November to the 12th December, Lieutenant W. Preston, R.N., in a hired cutter named the "Colonist," explored the coast North of Fremantle as far as latitude 28° 45′ South, a little above Geraldton.

From 7th to 13th December, Mr. R. Dale traced the course of the Helena River.

In 1831, during the month of January, Captain Bannister travelled overland from Perth to King George Sound, and Mr. W. K. Shenton undertook an expedition to Port Leschenault to explore the Collie River.

On two occasions, in March and in December, Mr. J. G. Bussell traversed the country between the Swan River and Port Augusta.

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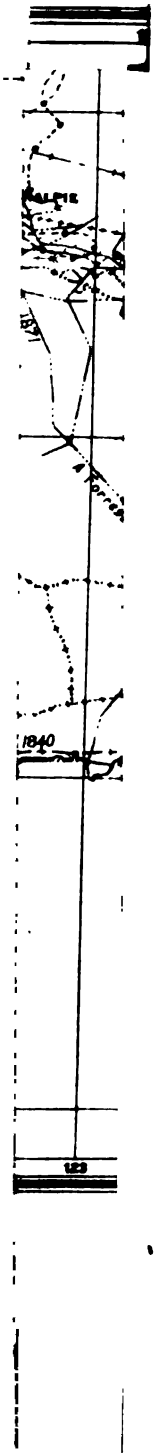

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In April, Lieutenant Preston made an excursion in a whaleboat to Point d'Entrecasteaux, and thence by land to the Murray River.

From the 20th April to the 4th May, Mr. Alexander Collie explored the country to the North of King George Sound.

Starting on the 20th September, Mr. R. Dale examined the country 50 miles to the North and South of Mt. Bakewell.

On the 20th December, Surveyor R. Clint commenced an exploration of the mountain range North and East of Porongorup.

During this year Mr. J. S. Roe and Sir James Stirling, in H.M.S. "Sulphur," were occupied in surveying the South coast.

In 1832, during the month of February, Mr. A. Collie explored the country between Albany and French River, and, in May, he further explored the country near King George Sound.

In 1833, during March, Mr. F. Whitfield traced the Helena River to its source, and in July Mr. Alfred Hillman, surveyor, explored the country between Albany and Nornalup Inlet.

In 1834, during January, Mr. G. F. Moore traced the Swan River to its junction with the Avon.

In September, Mr. Thomas Turner traced the Blackwood River to its source.

In October, Mr. H. G. Smith explored the country between Greenmount and the townsite of Northam.

In 1835, from the 6th to the 26th January, an exploration of the Hotham and Williams Rivers was made by Mr. A. Hillman.

In February Mr. J. S. Roe examined the country between the headwaters of the Kalgan and Hay Rivers.

In April Mr. G. F. Moore made an excursion to the Northward of the Swan River.

From the 4th October to the 8th November Mr. Hillman explored the country lying between Kelmscott and the Williams, and thence to the Avon.

From the 19th October to the 20th November, Sir James Stirling, with Mr. J. S. Roe, and a party, made the overland trip to King George Sound from Perth, returning *viâ* York.

In 1836 Mr. G. F. Moore made two journeys—one, in the early part of the year to the Northward of the Swan, led to the discovery of the Moore River—the other, to the Eastward and Northward of Northam, opened a new tract of grazing and agricultural land within sixty miles of the Swan. In this latter trip, which commenced on the 30th May, he was accompanied by Messrs. Peter Brown and G. Leake.

During the month of May Lieutenant H. W. Bunbury, 21st Fusiliers, explored the country between the mouths of the Dale and Williams Rivers.

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From June to September Mr. A. Hillman was employed in surveying a road from Albany towards Perth.

Between 20th and 23rd October Mr. H. W. Bunbury crossed from Pinjarra to the Williams.

From the 2nd October to the 11th November Mr. J. S. Roe led an expedition to the North and East of Perth, to explore the tableland which lies in that direction. Although he reached Lake Brown, near the Western boundary of the present Yilgarn goldfield, the only discovery he made worthy of note was that of the Salt Lakes, which have since been found to form a marked feature of the plateau.

In 1837 an expedition, in charge of Captain George Grey and Lieutenant Lushington, was sent out from England under instructions from Lord Glenelg, then Secretary of State for the Colonies, dated 16th June, 1837, to proceed in H.M.S. "Beagle," commanded by Captain Wickham, either to the Cape of Good Hope or Swan River, and there to procure a small vessel to convey the party and stores to the most convenient point in the vicinity of Prince Regent's River, where, after due examination of the country in the immediate neighbourhood, they were to take such a course as would lead in the direction of the great opening behind Dampier's land, from whence they were to use every exertion to penetrate to the Swan River, proceeding in a direction parallel to the unknown coast, and, necessarily, crossing every large river that flows from the interior towards that side of the continent. The objects of the expedition were specified as follows:—To gain information as to the real state of North-Western Australia, its resources, and the course and direction of its rivers and mountains; to familiarise the natives with the British name and character; to search for and record all information regarding the natural productions of the country, and all details that might bear upon its capabilities for colonisation or the reverse; and to collect specimens of natural history. The original party consisted, besides Grey, of Lieutenant Lushington (9th Foot); Mr. Walker, a surgeon and naturalist; and Corporals Coles and Auger, of the Royal Sappers and Miners. At the Cape the schooner "Lynher" (140 tons) was chartered, and on the 13th October, 1837, the exploring party, now increased to 12 men, with a large quantity of stores and live stock, seeds and plants, sailed for Hanover Bay, on the North-West coast of Australia, where it arrived on the 3rd December following. Whilst the schooner proceeded to Timor for horses, Grey employed the time in exploring the country in the vicinity of Hanover Bay, forming a garden, collecting specimens, and building sheds for the stores. On the 9th December he hoisted the British flag, and went through the ceremony of taking possession of the territory in the name of Her Majesty. About a fortnight after the arrival of the ponies, on the 30th January, a start was made, and, after varied experiences, caused by the heat, the rain, the difficulties of transport, and a certain amount of trouble with the natives, in an encounter with

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whom, on the 11th February, Grey was very severely wounded in the hip, the expedition, on the 2nd March, discovered a large river, which was named the Glenelg. Hampered though he was by his wound, the incessant and heavy rain, and the difficulties of transport through the alternately rugged and marshy country, Grey, at length, on the 31st March, reached and named the Stephen Range in latitude 16° 0′ 45″ S. and longitude 125° 11′ E. On the return of Lushington, who had proceeded about 18 miles further in advance, and who reported the country utterly impassable for horses on account of the steepness of the hills, Grey, owing to his personal ill-health, the heavy mortality amongst his ponies, the unfavourable season, and the reduced state of his stores, decided to return to the "Lynher" on his old tracks. On the 4th April, therefore, the party started on its homeward march. Reaching the schooner on the 15th, Grey found H.M.S. "Beagle," with Captain Wickham on board, lying in Port George the Fourth, awaiting the arrival of Mr. Stokes, who was absent exploring the coast between there and Collier Bay. Thence he sailed for the Isle of France, where he safely arrived on the 17th of May. Grey is most enthusiastic in his description of the commercial importance of three such fine harbours as Port George the Fourth, Hanover Bay, and Camden Sound, and waxes eloquent over the beauty and fertility of portions of the country which he passed through, and states that, in addition to its pastoral capabilities, the cultivated productions for the growth of which the soil and the climate seem best adapted are cotton, sugar, indigo, and rice.

During January, 1839, while occupied in searching for a settler named Mr. George Eliot, who had been lost in the bush for three weeks, but who eventually made his way to Port Augusta, Grey explored the country between the Williams and Leschenault.

From 17th February to 21st April, 1839, Grey explored the country between Shark Bay and Perth, finding excellent country for mineral, pastoral, and agricultural purposes. Starting on the first mentioned date, Grey sailed from Fremantle for Shark Bay in the American whaler "Russel" (Captain Long); his party, twelve in number, was composed of Mr. Walker, surgeon, Mr. Frederick Smith, Corporals Auger and Coles (sappers and miners), Thomas Ruston, sailor, H. Wood and C. Wood, seamen, Clotworthy, Stiles, and Hackney, volunteers, and Kaiber, an intelligent Swan River native. The object of the expedition was twofold: to examine the undiscovered portions of Shark Bay and to make excursions to such a distance inland as circumstances might render convenient. On 25th February, they disembarked on Bernier Island, where a provision depôt was formed. In launching the whale boats with the intention of examining the coast to the southward in the hope of finding water, there being none on the island, one was completely destroyed in the surf, the half ton of stores contained in her being lost. Grey had fortunately, however, taken the precaution to provide a spare boat, and on 28th February, in the two remaining boats, which each contained half a ton of stores, the

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party examined Dorre Island for water; but misfortune still pursued them, for in a violent hurricane at night both boats were driven ashore, and everything in them, except the salt provisions, was destroyed. After spending some time in repairing them, the mainland was reached, and water obtained, and on 8th March, coasting to the northward, Grey discovered the Gascoyne River. Landing at the foot of a range of hills ("Lyell's Range") nine miles north of the Gascoyne, they were so determinedly attacked by natives that firearms had to be used. Weatherbound here until 20th March, they then proceeded to Bernier Island, where the main stock of provisions had been left; but the hurricane which had detained them at the Gascoyne had destroyed everything except one cask of salt meat and half a cask of flour. Grey then decided to attempt at once to reach Swan River in the whale boats. Leaving Bernier Island on the 22nd, he carefully examined the southern shores of Shark Bay. Point Greenough was noted and named, and at a little inlet near Cape Lesueur the boats were beached to avoid a hurricane. At Dirk Hartogs Island another narrow escape was experienced, and in attempting a landing at Gantheaume Bay both boats were caught in the breakers and rendered absolutely useless, leaving the party no other resource than to walk back to Perth, a distance of 300 miles, with only 20lb. of flour and 1lb. of salt meat for each man. The few instruments absolutely necessary for taking observations, etc., were carefully apportioned amongst the members of the party, of whose faithful care of them Grey makes special mention. The plan first adopted was to walk slowly for one hour and then to halt for ten minutes, when the men rested and their leader entered in his notebook the observations taken during the progress. The men had foolishly encumbered themselves with salvage from the wreck of the boats, and, weary though they were, all Grey's entreaties failed to induce them to relinquish their worthless loads.

Thick scrub and gravelly tableland alternated with stony hills and limestone valleys; the dry beds of many streams were crossed. One place they passed, Grey considered the most thickly populated (native) district he had ever seen, and that it had been inhabited for many years was evidenced by the fact that, for three and a-half miles, the ground was perforated with the holes made by the natives in digging up the edible warran root (a species of yam). Mr. Walker here suggested a halt for a day or two, so that the men could refresh themselves with this native food; but Grey wisely refused, although the idea appealed strongly to the indolent and worn-out members of the party. Hostility was again experienced from another tribe of natives, but the firing a gun over their heads sufficed.

A river and estuary, named the Hutt, were discovered near the point where, according to Grey, the geological formation of the north-western and south-western portions of the continent become associated, whilst the flora was so made up of reproductions of both that it was impossible to say which predominated. Here some of

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the party became unmanageable; they either could not or would not realise the desperate nature of their situation, and insisted upon short marches and long rests. Grey, fully sensible of the danger of delay, again vainly entreated them to abandon the useless lumber they were carrying. The Bowes River was discovered and named, and a chain of mountains, observed twenty-five miles from their route, was called the Victoria Range, Grey honouring the whole dictrict, from its exceeding fertility, with the name of the Province of Victoria. The Buller and Chapman Rivers were crossed. Near the latter river one of the men decided to throw in his lot with the natives, and purposely dropped behind. A whole day was wasted in following up his tracks, but when found his inclination to remain with the natives had disappeared. Although the natives made no friendly advances, they exhibited no hostility. After the Greenough River was crossed, the men again refused to travel, and water at the same time becoming difficult to find, Grey, with Auger, Coles, Hackney, Henry Wood, and Kaiber, proceeded to make a thorough search, providentially discovering a spring at the foot of a hill which he called Water Peak. After a short rest they returned with a plentiful supply to their companions, who had encamped near the dry bed of another river, which Grey called the Irwin.

They were now, Grey calculated, about 190 miles from Perth, and none of the party had more than six or seven pounds of flour left, whilst he himself had but one and a-half pounds of flour and one pound of arrowroot, which he was obliged to share with Kaiber, who had nothing left. In seven days they had made but 70 miles, and as the men were daily becoming weaker and more disinclined to march, Grey decided to push on with a few picked companions to Perth, whence assistance could be sent back to the others. Grey selected Auger, Coles, H. Wood, Hackney, and Kaiber to accompany him, but a serious difficulty now arose with Mr. Walker, who flatly refused to encumber himself with Captain King's chart of the coast for use on his journey. This was fortunately, however, settled by Smith making as accurate a copy as circumstances permitted, which Walker consented to take. A rendezvous was fixed to which assistance was to be sent to Walker's party at Goon-ma-ra-rup, on the Moore River, 55 miles to the North of Perth, which Smith had visited with Grey during a former expedition. Walker, it was settled, should proceed along the coast till he reached the Moore River, where Grey would arrange for another party to meet him. On April 10th Grey started, leaving behind Walker, Smith, Ruston, C. Wood, Stiles, and Clotworthy, with everything which he thought would be really useful to them. Grey's course was impeded at the outset by thick bush. Then for about 15 miles a scrubby plain was traversed, when they came upon the river named the Arrowsmith; halting here for two hours, they observed some natives digging for roots, whom Grey mentions as being the most Northern tribe he had seen wearing the kangaroo-skin cloak. On 12th April, 50 miles had been covered. On the morning of the 13th Grey found that during the night a rat had eaten more than half of his

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last damper, leaving him only three tablespoonfuls of arrowroot and the uneaten morsel of damper; this, too, had to be shared with the native.

On the 14th 31 miles more had been traversed, including the Gairdner's Range. Fourteen miles from this range they crossed a river which Grey named the Hill; here Kaiber found a native store of By-yu (or Zamia) nuts, some of which were taken. After passing, on 16th April, the dry bed of a river named the Smith, water failed, and the men becoming weak and enfeebled from hunger and thirst combined, it was with the greatest difficulty they could drag themselves along, and at last were driven, in their agony, to resort to the most revolting resource of thirst. Grey, unable to bear the distressing sight, taking only his native and his gun, made a long, but fruitless search. Directing Kaiber to take him back to the party, he, after a time, discovered that he was being misled, and it was only on his threatening to shoot him that the native ultimately led him back to the camp. Grey now informed his men that it was his intention to proceed slowly to the south, and not to halt until he dropped or reached water. All superfluous articles were cast aside, and, staggering on, they came upon a small hole of liquid mud in a swamp, which quickly revived them all. Grey also shot a cockatoo, half of which he divided between himself and Kaiber, retaining the remainder for future emergencies. The next day they struck a river, in which were numbers of *unios* or fresh-water mussels, whilst Kaiber, to whom *unios* were "tabu," received the remainder of the cockatoo. Rain now fell in torrents, rendering a fire impossible, and for two days, in the absence of any protection, their sufferings from cold and wet were intense. On the third day they fell in with a party of natives, who at once recognised Grey, and gave them food and informed them that they were but a day's journey from Perth. Grey, who was anxious to send assistance to their comrades left with Mr. Walker, at daylight next morning, started for Perth, accompanied by Imbat, one of his new friends, reaching there at mid-day on 21st April. He at once waited on the Governor, and arrangements were made for a party to leave within a few days. In the evening the remainder of Grey's portion of the party arrived. On the 23rd April Lieutenant Mortimer, of the 21st Regiment, and Mr. Spofforth, with four soldiers, left Perth, and in two days reached the Moore River. For two days they searched its banks in vain, and then, pursuing a straight course about 25 miles farther north, they came upon another river where a depôt was formed, whence detours were systematically made in various directions, during one of which Charles Wood was found by Mr. Spofforth lying on the beach asleep. Wood stated that much disorder and discontent had prevailed amongst the men, who frequently left the beach and wandered inland to procure water and food; and that, dissatisfied with the slow progress made, and the many deviations from the route Grey had directed them to take, he had quitted the party, and by more strictly following Grey's injunctions, was found by Mr. Spofforth.

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After vainly endeavouring to find the five remaining persons, Mortimer, at the end of a fortnight, was compelled, through want of provisions, to return to Perth, which was reached on the 6th of May. Early next morning the Surveyor General, Mr. J. S. Roe, accompanied again by Mr. Spofforth, four men, two native youths, and five horses, left to continue the quest. On the 9th of May, two days after the departure of Mr. Roe's party, Mr. Walker arrived in Perth alone. He gave a brief account of what had befallen them after Grey had left. They started at dawn on the morning of the 11th April, but coming to the thick belt of bush mentioned by Grey, they returned to the beach, where they halted, Water Peak Hill being then distant from them about 15 miles. In the three days following they made only about 26 miles. On April 15th they marched 20 miles, the longest distance they travelled in one day. Wood left them on the 21st April.

On the 2nd May Mr. Walker left them to attempt to reach Fremantle, and from there send a boat to their relief. After Mr. Walker's departure they fortunately discovered a cask of water washed up on the beach, and succeeded in catching a few fish, but for several days they made no distance. Mr. Smith, it appears, gradually became exhausted, and one evening lay down on a bank, saying he could go no further. The next morning Ruston went back to help him, but was unable to find him, as he would appear to have crawled up into the bush, a short distance from the track, and there died on May 16th. Four days after his death the rest were picked up by Mr. Roe a few miles from Kadjelup, the men having been then three days without water and four days without food.

On the 18th Smith's body was found and buried by a soldier and the native, Warrap, in a sandhill near the shore, about 76 miles north of the Swan River.

Mr. Roe's party, in ignorance of Walker's arrival, examined the coast from the mouth of the Moore River to within 12 miles of Perth for traces of him, when, on the 22nd May, they were met by a police constable, who informed them that he had already safely reached Perth.

Soon after Grey's reports had been placed before the authorities, Mr. George Fletcher Moore was sent to examine the coastal districts in the neighbourhood of Moresby Range. His opinion of the locality was favourable, and he gave the explorer's name to the port South of Point Moore, calling it Port Grey. The harbour to the North of the point, which was found to be the better of the two, was shortly afterwards visited by Captain Stokes in the Government schooner "Champion," and received its present name of Champion Bay.

In 1837, from the 4th to the 29th April, Sir James Stirling examined the country between Perth and Kojonup.

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Between the 30th November and the 15th December, Messrs. W. K. Shenton and Richard Dale made an excursion to the Collie and Brunswick Rivers.

During the period 1838-41, Captains Wickham and Stokes, in H.M.S. "Beagle," began and completed an important series of coastal surveys on the North-West coast, discovering the Fitzroy and Adelaide Rivers.

In 1838, from 15th January to 25th May, an unsuccessful search was made for a channel supposed to connect Roebuck Bay with Buccaneer's Archipelago. King Sound was discovered and named, and a favourable report was given of the country in the vicinity.

In 1840, between the 4th April and 27th September, they examined Houtman Abrolhos, discovered good anchorage at Champion Bay, and carefully surveyed Dampier's Archipelago from Barrow Island to the Forrestier Group.

In 1841, with Captain Wickham invalided, the command of the "Beagle" devolved upon Stokes, and on the 24th September he sailed from Cœpang, in Timor, to complete the survey of the North-West coast South of Roebuck Bay, left unfinished by King. He found the coast destitute of good anchorages or important rivers, of a low sandy character, occasionally relieved by red sandstone cliffs or projections, but rising and improving as it approached Bedout Island. On the 23rd November the "Beagle" returned to the Swan River. In the same year, from the 12th to the 16th December, a trip was made by Stokes to ascertain the exact position of Port Grey, which he found to be almost identical with Champion Bay, and he also explored the surrounding country previously reported upon by Captain Grey.

In January, 1839, Sir James Stirling examined the country in the Vasse district.

In 1840, from the 9th to the 26th January, Mr. D. Dring, in the "Champion," made a voyage from the Swan River to discover the mouth of the Hutt River, or an anchorage near it.

From 10th to 15th January Mr. H. M. Ommanney, Assistant Surveyor, examined the Capel and Preston Rivers.

In February and March the Kojonup district, and the country between there and Albany, was explored by Assistant-Surveyor Hillman and Mr. William Nairne Clark.

In that same year Mr. John Scully, with a party consisting of Mr. Drummond and others, explored the country in the vicinity of the Moore River, naming the Victoria Plains.

In 1841, from the 31st January to 27th July, a journey, which ranks amongst the greatest feats of human endurance, was accomplished by Mr. Edward John Eyre.

In an attempt, begun in the previous year, to cross overland from Adelaide to Western Australia, this explorer had been foiled,

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chiefly by want of water. Having sent back the majority of his party, he started from Fowler's Bay, South Australia, with one companion, Baxter, and a black boy named Wylie, to reach King George Sound or perish in the undertaking. A short distance South-West of Eyre's Patch (126° East longitude), two natives, who were accompanying them, murdered Baxter at night and stole the greater part of their provisions. Eyre and his black boy were left to accomplish a journey of some hundreds of miles through an unknown country with forty pounds of flour and four gallons of water. This they succeeded in doing after undergoing the severest hardships. This journey of Eyre's, being the first successful attempt to cross from South Australia to the new Colony in the West, was of considerable geographical importance. It may be mentioned here that this enterprise would probably have never been concluded but for their happy meeting with, and kind treatment by, Captain Rossiter, of the French whaler "Mississippi," who rendered them every assistance and kindness when reduced to the last extremity of hunger, thirst, and fatigue. This providential encounter occurred some three weeks' march from Albany.

In the month of February Mr. William Nairne Clark made an expedition in a whaleboat from Albany to Deep River, Nornalup Inlet, and Point d'Entrecasteaux, discovering immense jarrah and karri forests. Mr. Clark, in his journal, comments on the value of his timber discoveries, and also on the fact that the whole of the whale fisheries were in the hands of the American whalers, of which he says that "upwards of 150 sail, averaging about 300 tons each, are off the coast in the whaling season."

In December, Governor Hutt, accompanied by Mr. J. S. Roe and Captain Stokes, made an overland journey from Fremantle to the new settlement of Australind.

In 1842, during January, Mr. R. H. Bland traversed the country between the Vasse and Albany.

In the same year Mr. H. Landor made an excursion to the South-East of Beverley, and reported superior grazing country of great extent and richness.

In January, 1843, Messrs. Landor and Lefroy made a short exploration to the South-East of York and Beverley, in search of a large inland sea mentioned by the natives. Passing the headwaters of the Hotham and Williams rivers, they discovered some lakes, for the most part salt, but reported that they had failed to find favourable country of any large extent.

In 1844, during December, the colonial schooner "Champion," under the command of Lieutenant Helpman, accompanied by Mr. J. Harrison, civil engineer, was again despatched by Governor Hutt, to take observations in the neighbourhood of Gantheaume Bay, at the mouth of the Murchison River. His report confirmed Stokes' observations as to the general character of the country.

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In 1845, during May, Assistant-Surveyor A. C. Gregory made an excursion down the Blackwood River, and a similar one to the East of Kojonup, and down the Gordon River in April of the following year.

In 1846 Mr. A. C. Gregory, accompanied by his two brothers, Messrs. Frank T. and Charles Gregory, visited the salt lake region of the interior. Starting from Bolgart Springs, a large extent of swampy country was traversed, and a range of granitic hills, supposed to be the watershed of the coast streams, was discovered. Turning to the Westward to examine the rivers reported by Grey, they found at the head of one of these, the Irwin, several seams of coal.

In 1848, between 9th September and 12th November, Mr. A. C. Gregory, with party, examined the Murchison and Gascoyne districts, and found a galena lode in the bed of the Murchison River.

In December Governor Fitzgerald, accompanied by the last-named explorer, examined the new mineral discovery, and named the Geraldine Mine. On this journey he was speared by the blacks, but, notwithstanding, retained his lead of the expedition.

On the 14th September Mr. J. S. Roe commenced the longest and most celebrated of those journeys which have led to his being styled by some historians "the father of Australian explorers."

Starting from York, he reached the Pallinup in October, and steering East, crossed several good streams. Then succeeded dense scrub, dry watercourses, and salt lakes, till the Bremer Range was reached. No better country could be seen from the Fitzgerald Peaks at an altitude of 1,000 feet, so Roe retreated towards the coast, and only stopped to halt at Russell Range (latitude 33° 27′ South) after being deprived of water for three days and nights. On his return journey extensive deposits of brown coal were found at the Fitzgerald River. The expedition reached Perth on the 2nd February, 1849, having explored 1,800 miles of the Colony, and discovered a valuable stretch of timber country.

In 1854 a party, under the charge of Mr. R. Austin, Assistant Surveyor, was sent by Governor Fitzgerald to examine the country North and East of the settled districts, with a view to the discovery of minerals, or navigable water, and to seek pastoral and agricultural land in the Gascoyne District. In this expedition, which left Mombekine, near Northam, on the 10th July, and passed Lake Cowcowing, a considerable tract of the salt-marsh district to the North-East was traversed and examined, and several mountains and salt-lakes discovered; but, his horses having been destroyed by the poisonous box-plant, Austin was compelled to make for the coast at Shark Bay, the appointed rendezvous.

At Mount Magnet a halt was made, and the surrounding country examined. Almost as soon as the Murchison had been

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crossed, the party commenced to suffer terribly from want of water, and after many fruitless attempts to proceed towards their desired destination, were compelled to retreat to the river, having penetrated to longitude 115° 16′ East, latitude 26° 15′ South. Following the Murchison down, they arrived at the Geraldine Mine on the 20th November. Austin in his report to the Government indicated the existence of four fresh water streams of considerable size coming from the North-East and shedding into the Murchison. He also stated that the belt of country around Mounts Kenneth and Magnet, and in the neighbourhood of Lake Austin, was probably "one of the finest goldfields in the world."

In 1856 Mr. A. C. Gregory made his well-known journey from the Northern Territory of South Australia along Sturt Creek, tracing it as far as Termination Lake (Gregory's Salt Sea, latitude 20° 16′ South, longitude 127° 31′ East) in the North-East district of this Colony. Finding no visible outlet for the waters of this sea, he returned to his camp on the Victoria, and resumed his previous exploration of that river. During this trip the Denison Plains, to the South of the present Kimberley goldfield, were discovered.

In 1857 Mr. F. T. Gregory ascended the Murchison River to complete the survey of its unexamined portions.

In 1858 Captain H. M. Denham, in H.M.S. "Herald," assisted by Lieutenant J. Hutchison, surveyed the portion of Shark Bay lying South of Dampier Reef, including the Sound now called by his name.

During the same year a land expedition under Mr. F. T. Gregory was sent out for the purpose of exploring and reporting on the Gascoyne and Shark Bay Districts. Leaving the Geraldine Mine on the 16th April, Gregory followed the Murchison River to the neighbourhood of Mount Gould, and the intervening country having been crossed, reached the head waters of the Gascoyne. Tracing that river down to its mouth, he returned by a route somewhat similar to his outward one, and reported that there were several large tracts of good and well-watered land, suitable for pastoral purposes, to be found in the Gascoyne District. This proved a much needed encouragement to the settlers in the Colony. Mr. J. B. Roe, a son of the Surveyor General, accompanied Mr. Gregory on this expedition.

The year 1861 also was one important in the history of the settlement of the Colony, when other large tracts of country, hitherto considered useless, were added to its pastoral districts.

Mr. F. T. Gregory was sent to report on that part of the country lying inland from the North-West coast, which had previously been unfavourably reported upon by King and Stokes. From the 10th May to the 17th October, with Nickol Bay as his base of operations, he was occupied in exploring the back country near the headwaters of the Ashburton, Fortescue, DeGrey, and Oakover rivers. All these rivers were discovered and named by

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him, and he also discovered several large areas, notably in the vicinity of Nickol Bay, which were suitable for pastoral purposes.

From the 3rd July to the 23rd August Messrs. B. D Clarkson, C. E. and A. Dempster, and C. Harper were engaged in exploring the country East of Northam, and successfully penetrated the dense scrub and salt-lake country previously supposed to be impassable. They reached Mount Kennedy, and traversed a great portion of the district which now forms the Yilgarn Goldfield. Georgina Range was the furthest point reached, and here the country had considerably improved, the soil being rich and the grass excellent.

In July of this year, and *in June, 1865*, Captain E. A. Delisser, a squatter, made excursions from Fowler's Bay, in South Australia, into the South-East corner of this Colony. He went in a North-West direction from the head of the Bight, and after suffering somewhat from want of water, reached a district covered with grass and saltbush, which he described as excellent for grazing purposes. His opinion of this district has since been confirmed by Mr. A. Mason and other travellers.

In 1863 Messrs. C. C. Hunt and Ridley landed at the DeGrey River, and explored the country touched on by F. T. Gregory.

In the same year, from the 7th May to the 31st July, Mr. Henry Maxwell Lefroy was in charge of an expedition organised for the purpose of exploring the district East of York, and discovering country suitable for sheep-farming.

It was partially successful in its object, as it enabled the leader to report the existence of good land for agricultural purposes. Lefroy said, however, that no settlement could take place till wells had been sunk, owing to the absence of surface water. He traversed a large portion of the present Coolgardie goldfields, and reached 122° 3′ East longitude.

In 1864, on 5th July, Messrs. B. D. Clarkson, Chas. Harper, and L. Lukin left Doodlakine, about 110 miles East by South of Toodyay, for the purpose of discovering pastoral lands to the North and East. They encountered country somewhat similar to that met with in 1861, and having reached latitude 30° 15′ South, longitude 120° 20′ East, without finding it at all suitable, they returned, reaching their starting point on the 18th August.

In the same year Mr. C. C. Hunt left York on the 10th July for the purpose of exploring the country to the Eastward. His trip is of importance, as he passed over the present site of Coolgardie, and reached longitude 121° 55′ East (in the vicinity of the Hampton Plains). Owing to want of water he was compelled to return to the neighbourhood of Lake Lefroy, but reported that the land further out was much better than that nearer York. This journey of 400 miles was made between the 31st and 32nd parallels of latitude, and its result was disappointing. Mr. Hunt, two years afterwards, made an almost similar trip to the Hampton Plains.

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From the 12th to 27th September Mr. A. Dempster made a trip from the Gage River, near Esperance, to the Dundas Hills *viâ* Fitzgerald Peaks, and reported that a stock route to the North could be opened without much difficulty. In November of the same year Mr. E. T. Hooley failed to find one between Champion Bay and the Gascoyne. During this year, also, Mr. Robert Austin visited the Glenelg River, and reported favourably on the country in its vicinity.

About the year 1865 Mr. Trevarton C. Sholl made an exploration to the South of Camden Harbour. In this journey he visited the Glenelg Basin, ascended and named Mount Page, discovered the Berkelman River, crossed the Harding Range in the face of almost insuperable difficulties, and reported a large tract of good pastoral country.

In 1866, from 10th January to 28th February, Assistant Surveyor James Cowle explored the country between Roebuck Bay and Port Walcott, and reported three million acres of country known to be fit for grazing purposes, and improving considerably inland from the coast.

In this year also (16th April to 10th November) Mr. E. T. Hooley made a more successful attempt to open up a stock route to the North-West, journeying as he did in safety from Champion Bay to Port Walcott and back. During the year (1866) Mr. R. J. Sholl and his son, Mr. Trevarton C. Sholl, were responsible for the conduct of several expeditions from Roebourne to examine the country lying around the headwaters of the Harding, Ashburton, Sherlock, and Fortescue rivers. They were successful in demonstrating the suitability of the land for pastoral purposes, and opening up this practically unknown district for settlement.

On the 6th of May, 1866, Mr. J. Logue sent out a party from Camden Harbour, under the leadership of Mr. A. McRae, for the purpose of exploring the country Southward. On the 10th, after crossing well-grassed level plains, in places the grass being so strong that the horses had as much as they could do to wade through it, they reached a river. They found it a fine stream 150 yards wide, running North by West. The banks were about 20 feet high, and the current ran about two miles per hour. The next day they saw 15 or 20 natives burning the grass for pigeons' eggs. The aborigines were unarmed; they were very much alarmed, and tried to hide themselves in the long grass. The party started on the return trip that afternoon, and reached Camden Harbour on the 16th.

Mr. McRae reported that "the country possessed all the advantages of a good sheep country, except that it was low, and perhaps too far North. The principal timber was the white and flooded gum and two kinds of wattle; the baobab also grew in great luxuriance."

A period of some years now elapsed in which little or nothing was done in the way of further exploration; but, three years after

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Hunt's second journey to the Hampton Plains, the first of that memorable series of explorations undertaken by Mr. (now Sir) John Forrest and his brother Alexander, which have proved so important to the Colony, was concluded.

In 1869, from the 15th April to the 6th August, Mr. John Forrest, then a surveyor in the employ of the Western Australian Government, made a short expedition to Lake Barlee. Although unsuccessful in finding good land available for pastoral or agricultural settlement, he obtained a reliable survey of a great deal of country hitherto unknown, and withdrew one more district from the unexplored regions of the Colony.

The expedition was also barren of results with regard to its main object, the unravelling of the mystery in which the fate of the lost Leichardt's party is involved, but succeeded in penetrating Eastward to a considerable distance beyond Mount Margaret, reaching latitude 28° 41′ South, longitude 122° 50′ East.

In 1870 the same explorer, accompanied by his brother, made his well-known journey from Perth to Adelaide *viâ* Eucla.

Leaving Perth on the 30th March, a South-Easterly course was taken to Esperance Bay, where the "Adur," a hired schooner, was to meet them with supplies, and render any further assistance she could. From Esperance Bay an Easterly stretch of 130 miles brought them to Israelite Bay, and on the 30th May the little band of explorers started afresh. Striking inland from the coast, which had been closely followed since leaving Esperance, want of water compelled a forced march to longitude 126° 24′, where Eyre had marked a supply. Thence the leader made a flying trip northwards, and reported the country there to be good grazing land, but without permanent water. The schooner having arranged to meet them at Port Eucla, on the 24th June, they left their oasis, and after a necessarily hurried journey, throughout which their horses suffered somewhat severely from thirst, reached Eucla safely, but greatly exhausted by the hardships *en route*.

After a short trip inland, Forrest left Eucla on the 14th July, and passing through South Australian territory from that date, reached Adelaide safely on the 27th August, 1870, having accomplished the journey, which had taken Eyre twelve months, in less than five. This was possible owing to the greater facilities which the later expedition commanded, and Forrest was enabled to give a more impartial verdict as to the nature of the country passed through. In so far as this affected Western Australia it was distinctly cheering, for although Eyre's opinion of the waterless nature of the country traversed was confirmed, yet the district inland from the coast, hitherto supposed to be a sandy desert, was found by Forrest (between 126° and 129° East Longitude) to be beautifully grassed, with water procurable in some places at moderate depths. To use the explorer's own words, "If water could be procured on the tableland, it would be the finest pastoral district of Western Australia."

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In 1871 Mr. A. Forrest took charge of an expedition to the Eastward in search of new pastoral country. Owing to a late start, he and his party were compelled to make for the coast when they had reached latitude 31° South, longitude 123° 37′ East. This course led them to Mount Ragged, and thence proceeding Westerly they returned to Perth *viâ* Esperance, having gone out 600 miles, and discovered a considerable tract of good country, much of which has since been taken up and stocked.

In 1873, during April, Mr. William Christie Gosse, Deputy Surveyor General of South Australia, setting out from Alice Springs Telegraph Station, attempted to make the overland journey to Perth. He returned to his starting point in December, having failed to get through owing to the arid nature of the country. He, however, entered Western Australia near the Tomkinson Mountains, and examined the country in the vicinity, also that near the Cavenagh and Barrow Ranges, thus acquiring a geographical knowledge of some hundreds of miles of new country. His furthest Westerly position was in longitude 126° 59′ East, to the South of the Barrow Range.

A more successful attempt was made in the same year, between the 15th April and 29th December, by Major Peter Egerton Warburton in his journey from the McDermot Ranges in South Australia to the head waters of the Oakover River.

Although he reached the West coast, and penetrated a district never before examined by white men, little was learned from his experiences. The expedition was provided with camels, but owing to constant delays, provisions fell short, and sickness came. Warburton thereupon determined to push through as rapidly as possible, travelling by night; and thus, fleeing "as it were for their lives Westward over the Sahara," the members of the expedition were too much occupied to notice carefully the character of the districts traversed. What opinion they did form was unfavourable, as the country was reported to be a sterile one, in which horses could not possibly exist, and in which nothing was visible in the way of permanent water courses. On this journey were found the Joanna Springs, since invested with melancholy interest in connection with the Calvert expedition, as the appointed rendezvous which the ill-fated explorers, Wells and Jones, failed to reach. Warburton's route throughout lay between the 20th and 22nd parallels of latitude South.

In 1874, on the 18th March, shortly before Major Warburton's arrival in Perth, Mr. John Forrest, accompanied by his brother Alexander, left that city to attempt the solution of the same problem which had engaged the attention of the two last-named explorers, the nature of the interior of the Colony, and to ascertain, if possible, whether a route to the advanced settlements of South Australia was practicable. According to official instructions he was to "obtain information concerning the immense tract of country from which flow the Murchison, Gascoyne, Ashburton, DeGrey, Fitzroy,

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and other rivers falling into the sea on the Western and Northern shores of this territory." Upon reaching the tropics, Forrest's further course was to be discretionary. Leaving Yuin on the 14th April, and striking the Murchison River, they followed it as far as the Robinson Range; thence struck South-East to Mounts Bartle and Russell, and North-East by the Kimberley (believed to be the watershed of the Murchison) and Frere Ranges, till they reached Weld Springs, where an unlimited supply of clear fresh water was found. The land had so far proved good, and in places—such as the basin of the Upper Murchison—admirably adapted for grazing purposes, but as soon as they had quitted their position at Weld Springs (about longitude 122° East) a succession of waterless stretches of spinifex country was encountered which would have proved fatal to the expedition's purpose but for the timely discoveries of small supplies of the precious liquid—notably at Alexander Spring. They were now within a hundred miles of Gosse's furthest West, and were pursuing an Easterly course; so, under ordinary circumstances might have been expected to reach known country in a few days; but so great was the dearth of water, that a return on their own track became a serious contingency, and it was only owing to the foresight and perseverance of their leader that this catastrophe was avoided. After passing over more spinifex country and several rocky ranges, they at last reached permanent water at Barlee Springs, and found themselves in a neighbourhood already traversed by Giles and Gosse, halting, in fact, at Fort Mueller, one of the former explorer's depôts. From this point to the end of their journey, their previous difficulties recurred, but to a greatly modified extent, and the whole party reached the Peake Telegraph Station on the 27th September, and Adelaide on the 3rd November. Necessity, in several instances, had shaped their course. First, in Western Australia, owing to want of water, they were prevented from penetrating as far to the North as had been desired; afterwards, when they had crossed the border, a combination of causes, including a hot, dry season, bad country, short provisions, and fagged animals, changed Forrest's intention of exploring to the South.

Whilst his report as to the chances of settlement in the spinifex region was distinctly unfavourable, with perhaps an exception in favour of patches similar to those in the neighbourhood of Mount Moore and Lake Augusta, still Forrest gave a most cheering account of the land on the Murchison beyond the then settled districts of the Colony.

It will be seen what a disadvantage he laboured under compared with Warburton and Gosse. But even thus handicapped, he only the more exhibited his ability as an explorer; for whilst Warburton, equipped with camels, hurried across the continent, losing fifteen out of seventeen beasts, Forrest not only saved a dozen of his eighteen horses, but travelling slowly, and making careful notes, was able to give a full and valuable report on the character of the country through which he had passed, and, in the words of a well-known historian, "concluded one of the most remarkable journeys on record."

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Contemporaneously with these expeditions of Forrest, Warburton, and Gosse, a series of journeys was being made by a man who must always rank high amongst the noteworthy explorers of this State.

Ernest Giles had determined to accomplish a task which had baffled many explorers—the examination and opening up of the supposed desert of Central Australia; but it was not until his third attempt that he was successful; and his journey must rank next to Forrest's as the most remarkable of similar attempts, for he not only succeeded in crossing from Adelaide to Perth, but completed the circuit by returning overland to South Australia *viâ* the Murchison, and accomplished this in about twelve months' actual travelling time.

Being provided with horses only during his previous two expeditions, he failed in the former one even to reach the border, and in the second (1873-4) penetrated the desert country in two directions, only to be driven back to South Australia through lack of water. On his journey to and from Fort Mueller, no serious mishap befell him or his party, which consisted of Alfred Gibson, William Henry Tietkins, and James Andrews, but in the flying trip during which he sighted the Alfred and Marie ranges, his companion Gibson succumbed to the perils of the desert now known by that ill-fated explorer's name.

In 1875, on Giles' third expedition, he was, through the generosity of Sir Thomas Elder, equipped with camels, and effectually proved their superiority over horses as desert-voyagers by accomplishing with them, comparatively easily, what his most strenuous efforts with horses had previously failed to achieve.

Leaving Port Augusta on the 23rd May, they reached Boundary Dam, in Western Australia, during August. So far the journey had proved easy, but as soon as they plunged into the Great Victoria Desert, which extends some hundreds of miles towards the West, they began to undergo the usual hardships of travellers in such districts. When nearly exhausted by a waterless stage of 325 miles, they reached Queen Victoria Springs. After a short rest here, a course North-East of the present Coolgardie goldfield was taken, and water was found at Ularring. The remainder of the journey was uneventful, and steering Westward, they reached Mount Churchman, and eventually Tootra, an out-station of Messrs. Clunes', in the vicinity of Lake Moore. At Perth, which was entered on the 18th November, they received a hearty welcome—having travelled 2,575 miles in about five months. During this expedition nothing special in the way of country suitable for settlement was discovered.

After a few weeks' rest in Perth, the return journey was begun on 13th January, 1876, its first stage being to Northampton, *via* Geraldton.

The party, in addition to the leader, consisted of W. H. Tietkins, Jess Young, Alexander Ross, Peter Nicholls, and Saleh, the Afghan camel driver, and two natives—Jimmy Nanthona and Johnny Oldham.

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Giles' object in this expedition was not only to reach the Alfred and Marie Ranges which he had seen on his 1874 journey, and to connect with his route of that year, but also to ascertain how far the terrible Gibson's Desert extended to the West. Having passed the headwaters of the Murchison and Gascoyne, they reached Mount Labouchere, and on the 10th May encamped on the Upper portion of the Ashburton. A subordinate excursion was then made from Grand Junction Depôt Northward to Opthalmia Range and Mount Robinson, on the border of the tropics. The head of the Ashburton was reached, 350 miles from its mouth, and it was thus proved to be one of the most important rivers in the Colony.

They entered Gibson's Desert on the 1st June, having resumed their journey Eastwards, and from the 12th to 18th of that month suffered intensely from want of water, a stretch of 230 miles being traversed without it. Soon afterwards the Alfred and Marie Ranges, and later on the familiar Rawlinson Mountains came in sight, whence, passing through South Australian territory, the Peake Station was reached on the 23rd August, a most formidable and hazardous journey having been completed with great expedition. Giles was now able to thoroughly substantiate the views of those explorers and geographers who had described the greater part of the interior of Australia as a sandy desert unfit for settlement. In performing these journeys he added greatly to the knowledge of the country traversed, and exhibited great skill as an explorer.

In 1876 Messrs. Phillip Saunders and Adam Johns, residents of the Northern Territory, South Australia, crossed, on a gold prospecting tour, from Roebourne to the overland telegraph line. Passing through the Kimberley district, they failed to discover its auriferous nature, but reported on good pastoral county in that neighbourhood.

In 1879, between the 25th February and the 6th October, Mr Alexander Forrest crossed from the DeGrey River to Daly Waters Station on the overland Adelaide-Port Darwin telegraph line. Leaving Beagle Bay, he proceeded East to King Sound, and thence up the Fitzroy, which he followed for some distance, and found it to be deep and rapid. Failing to penetrate the rugged passes of the Leopold Range, he was reluctantly obliged to go round it, and proceeding up the valley of the Margaret River, discovered the well-watered Nicholson Plains, which he speaks of as the "finest part of Western Australia that I have seen."

An Easterly course having been taken, the Ord River was then met with, and its neighbourhood seemed likely to repay a thorough examination; but, with sick companions and provisions falling short, the only course open was to steer for the telegraph, still 300 miles away, which Forrest succeeded in reaching after much suffering from thirst.

This trip was a highly successful one, as he found some of the most valuable country in the Northern part of Western Australia,

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which has since been stocked with cattle and sheep, and where large mineral wealth still remains to be developed.

In 1883 and the following year, Mr. John Forrest, accompanied by Surveyors J. S. Brooking, H. F. Johnston, G. R. Turner, and G. J. Walsh, landing at Roebuck Bay, examined a large portion of the Kimberley Division. He proceeded from La Grange Bay to Fitzroy River, examined the intermediate country carefully as far as St. George's Range, and found that it consisted mainly of rich elevated grassy plains with abundance of water. Round the lowest part of the Ord River the country was ascertained to be a fertile alluvium clothed with rich luxuriant grass. The surveyors attached to this expedition made accurate surveys of large portions of the district, traversing the Fitzroy, Margaret, May, Lennard, and Richenda Rivers. Mr. E. T. Hardman also accompanied this party and collected data which enabled him to prepare a valuable geological map.

In 1883 Messrs. W. J. O'Donnell and W. Carr-Boyd, exploring the country from the overland telegraph line in the direction of Roebourne, were fortunate in finding good country in Kimberley, and in 1884 a second expedition was undertaken by Mr. W. J. O'Donnell and party from the Katherine Telegraph Station to the same district.

In 1883 Mr. E. T. Hardman, the Government Geologist, reported indications of auriferous country in the Kimberley district, and shortly afterwards the first payable gold in Western Australia was discovered in that District by Messrs. Chas. Hall and P. Slattery.

In 1884 an unfortunate expedition was undertaken by Mr. H. Stockdale, an experienced bushman, from Cambridge Gulf, in order to explore the country in its vicinity.

From the Gulf Southwards he traversed well-watered and diversified country till Buchanan Creek was reached. Having formed his depôt there, he hoped to make further explorations, but owing to certain irregularities which had occurred in his absence on a flying trip, he was compelled to start immediately for his destination, the overland telegraph line between Adelaide and Port Darwin, and later to abandon, at their own request, two of his companions, whom he left provided with all necessaries, and to whom a relief party was despatched immediately upon his arrival at the telegraph station. This and subsequent search parties failed, however, to discover any traces of the ill-fated men.

In the same year Mr. H. F. Johnston, with Mr. G. R. Turner as second in command, and Mr. E. T. Hardman as geologist, continued the triangulation and feature surveys from Mount Pierre, on the Fitzroy, to the junction of the Negri and Ord. The course taken lay for a considerable distance South of Mr. A. Forrest's route in 1879, and led to the discovery and naming of the Mary and Elvire Rivers and numerous watercourses, "Hall's Creek" being also found, upon which is situated the present townsite of that name,

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the headquarters of the East Kimberley Goldfields. Mr. Hardman made an extensive geological examination of the country traversed, and reported very favourably on the auriferous character of the district, his report being important as directing attention to the Kimberley Goldfields.

In 1885 Mr. H. F. Johnston, with Mr. C. Y. Nyulasy as second in command, landed at View Hill, Cambridge Gulf, and connected that port by triangulation with the work of 1884. The course of the Ord was accurately mapped, and discovered to be wholly in Western Australian territory below the Negri Junction. The positions of the Bow, Fraser, and Behn Rivers were also ascertained.

In 1887 the discovery of colours of gold at Moujakine led to the organisation of the "Settlers' Association," which, with Government aid, fitted out a party, under the leadership of Mr. Bernard Colreavy, to explore the country to the Eastward of Newcastle and Northam. They penetrated the country as far as the Yilgarn Hills, a distance of fully 200 miles.

About the same time a party under the leadership of Mr. H. Anstey, while prospecting in the same section, found rich specimens of gold-bearing quartz at Eenuin, which led to the more careful examination of the Golden Valley and Southern Cross districts.

In 1888 Mr. Geo. T. Simpson, M.E., during the month of June, made a journey to the Hampton Plains on behalf of a private syndicate. He met with and reported on good country in that district, plenty of water and fair timber being found there.

In 1888-9, the headwaters of the Gascoyne and Ashburton were explored by Mr. Ernest Favenc, a well-known Queensland explorer and historian. Setting out from Geraldton for the Upper Gascoyne, he crossed over to the headwaters of the Ashburton in the North, and discovered three important tributaries of that river, the Cunningham, Jackson, and James, all running through magnificent pastoral country.

In 1889, on the 14th of March, Mr. W. H. Tietkins set out from Alice Springs to examine the hitherto unknown country to the North and West of Lake Amadeus. Entering Western Australia near the tropic of Capricorn, late in May, he discovered and named the Kintore Range, 1,500ft. high, to the North-East of Lake Macdonald, and ascended Mount Leisler. On the 31st of the same month he left for the lake, and its circuit having been practically completed, the Bonython Ranges were discovered to the South-East. On his return journey, Tietkins passed through sixty miles of country supposed to be contained in the area of Lake Amadeus, but no vestige of this great natural feature could be seen, although the lake was subsequently found in another direction.

In 1890 Mr. F. Newman, a Swede, travelled from Fraser's Range North-East to Queen Victoria Springs, calculated to be 135 miles distant. He described the latter part of the intermediate country as poor, and covered with spinifex and stunted mallee.

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The same year, Mr. W. P. Goddard was sent by a private syndicate to report on the country to the North-East and East of Lake Lefroy, and, in doing so, explored several districts previously unexamined. His most Easterly position was in longitude 124½° East (which was reached on the 12th September), the creek called by his name, and which is probably connected with the Ponton River in wet seasons, being discovered *en route*. About the same time the districts around Lake Lefroy and between that and Southern Cross were surveyed by Mr. Goddard.

In 1891 Mr. Lindsay, the leader of the expedition fitted out by Sir Thomas Elder to complete the exploration of Australia—more especially the Western Colony—left Warrina on 2nd May. Shortly after crossing the border, Mr. Leech was despatched on a fruitless trip Northwards to search for traces of the ill-fated Gibson, who had perished some seventeen years previously. The expedition then proceeded *viâ* Fort Müeller to Mount Squires, where water was obtained. Thence a South-West course was taken across the unknown Block A to Queen Victoria Springs. In latitude 29° 20′ South, 270 miles from Mount Squires, the Eastern edge of good pastoral country was touched. Upon reaching the springs they were found to be dry, and the intended further exploration from them as a base had to be abandoned, the party having to push on to Fraser Range; and this hasty trip through the desert from Mount Squires represented the only useful work done so far. Lindsay reported that when about half-way to the Range, they passed a good country of rich red soil producing good stock bushes, but all extremely dry. A belt of country "worthy the attention of prospectors" was also met with. Having rested for some time at the Range, they set out to examine, if possible, the Western side of the desert they had just traversed, but want of water compelled them to take an extreme Westerly course, *viâ* Mount Monger, to the Murchison, passing through country mostly covered with miserable thicket on a sandy soil with granite outcrops. On the 1st January, 1892, they reached their destination, where the majority of the members left the expedition, and their leader was recalled to Adelaide. In his absence, a flying trip was taken by Mr. L. A. Wells into the district known as Block A, lying between Giles' 1876 and Forrest's 1874 tracks. Starting practically from the depôt at Welbundinum, he completed his examination of practically the whole block in about six weeks, between the 23rd February and the 4th April. In this expedition he travelled 834 miles, discovered some fine ranges and hills, a large extent of pastoral, and some auriferous country, but no permanent surface water. The total area explored in the two expeditions was 80,000 square miles, and the total mileage covered 2,745 miles.

In 1895 Mr. J. H. Rowe traversed the heads of the Gascoyne and Ashburton Rivers, and the country south of the Ophthalmia Range, and mapped a fair extent of pastoral country, besides discovering some good waters.

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In 1896 Mr. C. A. Burrows explored the country in latitude 15° 30′ West of Cambridge Gulf to Mt. Bradshaw and named the Drysdale and Carson Rivers.

In the same year, on the 16th July, Mr. L. A. Wells, chief of the Calvert Exploration Expedition, started from Lake Way to examine the country between the East Murchison and Fitzroy Rivers.

Adopting a North-Easterly course, a depôt was formed in latitude 25° 54′ South, longitude 122° 20′ East, excellent water-holes and fair country existing in the neighbourhood. The period between the 10th August and the 8th September was occupied in a flying trip North-East through Mount Bates, on a dry stage of 200 miles, till a good well was found in latitude 23° 23′ South, and longitude 124° East, whence a return was made *viâ* Giles' 1876 route. Leaving the depôt finally on the 14th September, the party at length reached Separation Well. Thence travelling along the meridian of Joanna Springs, and, subsequently upon reaching that point, North-North-East, it struck the Fitzroy River, a little North-West of Mount Tuckfield, on the 6th November, a distance altogether from Mount Bates of 500 miles. Most of this was the usual spinifex and sandridge country, and the last 300 miles were almost destitute of camel feed or water—in fact they were compelled to abandon five beasts, and had the greatest difficulty in saving the others.

At Separation Well Messrs. C. F. Wells and G. Lindsay Jones were, on the 11th October, sent on to examine the country bearing West-North-West for 80 or 100 miles, and thence North-East to cut their leader's track about 30 or 40 miles South of Joanna Springs. On his arrival at the rendezvous six days later than had been expected, not finding the two men, Mr. L. A. Wells naturally concluded that they had arrived previously, and been compelled to push on to the Fitzroy. The fate of the unfortunate men has since been ascertained, their bodies being found by Wells some months afterwards fourteen miles West-South-West from the Springs. Their journal disclosed the fact that, being unable to proceed owing to the heavy nature of the country, they retraced their steps, and, striking the expedition's track, followed it Northwards, only to perish from want of water about the 15th November.

As soon as the news that two of the party were missing reached Perth, energetic efforts were put forth by the West Australian Government, and on the 19th December, Mr. W. F. Rudall left Braeside Station on the Oakover River in charge of an expedition to follow up the river and its branch, the Davis, thence striking Eastward to cut the tracks of the missing men.

After leaving Christmas Pool some distance South-East of Mount Macpherson, Rudall, guided by blacks, came upon a camp into which footsteps, supposed to be those of the persons sought, were traceable. Here, unfortunately, all tracks were lost, and he was reluctantly obliged, through his camels failing him, to return

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to his starting-point. He immediately organised a second trip, but after strenuous though fruitless efforts, the party engaged on this expedition also were driven back owing to the insuperable difficulties encountered. Rumours, supplied by natives, of straying camels, etc., having reached Rudall, it was considered wise to make a further search to the South of the Oakover River, and, accordingly, on the 7th February, 1897, he again set out. The course of the river being followed for some distance, the latitude of the tropic of Capricorn was reached, and in longitude 120° 10′ East the bodies of two men, supposed to have been murdered by natives, were discovered. Returning *viâ* Roy Hill Station to Nullagine, a report of the find was sent to Perth; but, after due consideration and medical examination, it was decided that the remains were not those of the missing explorers, and a final attempt was made to solve the mystery surrounding the fate of the two men. Rudall, leaving Braeside Station on the 9th April, visited Separation Well, and attained a point 60 miles South of Joanna Springs before returning to Braeside, which was finally reached on the 23rd June. Although these journeys proved unsuccessful in their object, it cannot be said that the work was fruitless, since Rudall had travelled over an area of 23,000 square miles, and had obtained a large amount of information not previously possessed concerning the physical features of the country examined.

In 1896, from 17th June to 13th September, Mr. A. Mason, a Government officer, was engaged in examining the South-Eastern district of the colony, lying between Kurnalpi and Eucla, into portions of which rabbits were supposed to have penetrated. He claimed to have discovered some millions of acres of some of the finest pastoral and agricultural country in the world, but reported a very poor supply of surface water. This important belt of land lies between 125° East longitude and the South Australian border, and South of about 30° South latitude. These plains were partly examined by Sir John Forrest during his 1870 overland trip to Adelaide, and both he and Captain Delisser in 1865 spoke of them in terms somewhat similar to those used by the latter explorer.

In the same year an expedition was sent, under the auspices of the South Australian Government, from Oodnadatta to Coolgardie, to open up, if possible, a stock route between the two places.

The leader, Hübbe, entered the Colony near Mount Hinckley, below 26° South latitude, and keeping to the South of that parallel, followed Forrest's 1874 route through Barlee Springs as far as Mount Allott, and thence South-West by Ernest Giles' Range, travelled to Lake Wells. The remainder of the journey by De La Poer Range and Mackenzie's Well, where a good supply of water was obtained, to Menzies and Coolgardie was through comparatively well-known country. He arrived at the latter place in August, and left some time afterwards, returning *viâ* Eucla to South Australia. Fair water was found in several places, *e.g.*, Mount Aloysius, but the same spinifex country which had harassed

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Forrest so much was met with throughout, with the exception of small patches of better country found near the South Australian border and during the latter part of the journey.

On 20th July an expedition, equipped and led by the Hon. David Carnegie, left civilisation at Doyle's Well, some 50 miles South of Lake Darlôt, to strike across the continent in a North-North-Easterly direction, in the hopes of finding gold-bearing or pastoral country in the great desert lying between latitudes 19° and 28° South and longitudes 122° and 129° East, which hitherto had only been crossed from East to West or *vice versâ*. Travelling over a long stretch of dry country, during which journey the camels were without water for 13½ days, they reached a soakage 45 miles South-South-West of Alexander Spring, which afforded water. Proceeding on past the Spring, which was dry, a few low sandstone ranges and hills were found, and, occasionally in the valleys, belts of bloodwood, and a few shrubs edible to camels; but most of the country was a continuous waste of sand ridges. From latitude 20° 40′ to latitude 19° 20′ South, these were again broken by occasional high tablelands and sandstone cliffs, from which small creeks ran into the sand, fine rock-pools, such as Godfrey's Tank, being found at their heads. On the outgoing trip, the only permanent water—Helena Spring—was found in latitude 21° 20′ South in limestone formation. Within 50 miles of Hall's Creek one of the party, Mr. Charles Stansmore, lost his life through a gun accident. On reaching that township on 6th December, Mr. Carnegie heard of the disaster to the Calvert Expedition and at once offered his assistance, but relief parties had already been despatched. After a badly-needed rest, the expedition left Mr. Stretche's cattle station in the beginning of April, 1897, and travelled down the Sturt Creek to its junction with Gregory's Salt Sea, in which were found numbers of wild fowl and fish. Following thence a generally Southerly direction parallel to the border, sand ridges commenced about latitude 20° 30′ South, and continued in almost unending monotony as far South as the Rawlinson Range. A range of considerable size, the Stansmore, was found in about latitude 21½° South, but neither auriferous nor pastoral country appeared to exist in its vicinity. Thence a Southerly course was taken to the Eastern end of Lake Macdonald. The sand ridges in this district were so frequent that in eight hour's travelling 86 of them were passed over. From here a Southerly and South-Westerly course was taken past the Rawlinson Range, till the outward (1896) track was struck near Alexander Spring. Much needed water was found in the bed of Blyth Creek, and a welcome fall of rain filled the Spring itself. Crossing Lake Wells, and cutting the Erlistoun Creek near its head, the first auriferous country seen since leaving Hall's Creek was met with. From this a course was shaped through Lake Darlôt to Coolgardie, which was reached in August, the expedition having travelled three thousand miles in eight months. No permanent water was found after leaving Sturt Creek, and the impracticability of a direct stock route being opened between Kimberley and the North Coolgardie fields, was proved beyond

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question. It was, moreover, clearly shown that the desert traversed, with the possible exception of small and isolated patches, contained no auriferous country.

In 1897, from May to October, Mr. Hugh Russel was engaged on a gold prospecting tour. From Crawford's camp, 60 miles North-North-East of Mount Margaret, a course was steered *viâ* Mount Shenton to Mount Squires, the journey being mostly over desert country. The whole district in this neighbourhood, including the Barrow, Warburton, and Cavenagh Ranges, was carefully examined, but little good country discovered. Returning on his outward track, no water was found from Melango Creek to Kirkpatrick's Well, which stage occupied 13½ days.

1896 to 1898. On the first April, 1896, Mr. Frank H. Hann, a Queensland squatter, started from Lawn Hill, on the Gulf of Carpentaria, to prospect the North-West interior of Western Australia for pastoral country. His party consisted of one white man, six Queensland blacks, and sixty-seven horses, nine of which belonged to his white companion, who accompanied him as far as Roebourne. The Ord River was struck in about lat. 16° 37′ South, and followed up to Hall's Creek. An attempt was made from here to find a track through the desert to the head of the Oakover River, but had to be abandoned, and a course made for Derby along the Fitzroy River. From Derby, Mr. Hann went on with his party to Broome, Condon, and Roebourne. After replenishing his stores at this latter place, he followed the Fortescue River to its head, and thence North-East to Nullagine. From here Mr. Hann made a trip to the Eastward, into the desert, where he met Mr. Rudall, who was searching for the lost members of Wells' expedition. So far Mr. Hann's trip had been barren of results, and the loss of horses was so great, that, on his arrival at Derby, he was about to return to Queensland, when he met Police Inspector Ord, who advised him to try the Leopold Ranges for gold. This he decided to do, and a start was made for Mt. Broome with six Queensland blacks, 31 horses, and two dogs. Great trouble was experienced in crossing the Leopold Ranges on the West side of Mt. Broome, but an examination of the country to the North and East for about 30 miles so satisfied Mr. Hann, that he decided to at once return to Derby, and take up land in the district just visited. On his leaving Derby, Inspector Ord joined the party, and the River Adcock, which had been explored and named on the first trip, was followed down to its junction with the Fitzroy River. A high and impassable range running North-East and South-West of the River on its South-East side was named Sir John Range, and a lofty table-topped mountain to the North of the Adcock-Fitzroy junction, was called Mt. Brennan. Blacks here were very numerous. The Fitzroy River was then followed up to an impassable gorge, 200ft. deep, with precipitous sides, which was named Sir John Gorge. To get round the range, the course was altered to North-West, where splendid cattle country was noticed, and then to the South-East. A fine river from the North-North-West was struck here, which

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forms a junction with the Fitzroy River, about half-a-mile above Sir John Gorge. This river was named the "Phillips" by Mr. Hann, but the name was afterwards altered by the Surveyor General to the "Hann River." On this river, four miles above its junction with the Fitzroy, a tree marked by Mr. Robert Buttons, $\frac{R B}{4 4}$, was discovered. Ten miles above the junction the river is a quarter of a mile wide, and splendidly adapted for watering stock; clear, running water, low banks, no bogs, the margin solid sand, and the stream opening up every now and then into large water-holes, all of which were found to be full of crocodiles, a harmless species, about 6ft. to 8ft. long, living principally on fish. Travelling about 20 miles up this stream, a small lake was found on the right bank of the river. The lake was three miles in circumference, and very deep, and was named "Gladstone Lake." On the lake and river geese, ducks, waterhen, and many other kinds of game were in abundance. The whole country was found to be intersected with rivers, creeks, and lagoons, the timber on the river consisting mainly of coolibah, box, plum, gum, magnificent bloodwood, bauhinia, kurrajong, and baobabs. One of the latter trees was measured, and found to be 45ft. in diameter, and rose perpendicularly to a height of 100ft. In 16° 45′ South lat., the Hann River takes a Northerly course, and runs through gorges into a rough range of hills, which were named the "Caroline Ranges." About 25 miles West from here a large creek was met with, and called the "Charnley"; the travelling was exceedingly rough, and the horses in a bad state for want of shoes. In the Charnley some bream were caught, and the river was then followed down through very rough country to an impassable gorge cut through a range of high basalt hills. This range was named "Edkins." It was covered with immense stones as slippery as glass. A new kind of palm was discovered here, with a succulent head, which formed a splendid vegetable something akin to cabbage. The Leopold Ranges were again crossed by means of a pass at the head of the Barker River, near Mount Hart. Mr. Hann was of opinion that a good dray road could be made over the ranges at this point. Natives were very numerous throughout this country, but very wild and unapproachable. They were without covering of any kind whatever, but iron implements were discovered in their camps. The last described exploration was carried out in June, July, and August, 1898. To quote Mr. Hann's own words, he "never saw better watered country in his life."

In 1901, during the month of April, the Government despatched a well-equipped party, under the leadership of Mr. F. S. Brockman, with Mr. Charles Crossland as second in command, to explore the extreme Northern end of the State, lying between the 17th and 14th parallels of latitude, and West from the 128th Meridian. That the investigation of the resources of the country might be complete, the party was accompanied by Mr. Gibb Maitland, the Government Geologist, and an assistant geologist, and Dr. F. M. House, as Naturalist. To use Mr. Brockman's own description of his trip:—Leaving the port of Wyndham on the 9th of May, the party proceeded in a Southerly direction, following

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the course of a previously unexplored river (named the Chamberlain) to the 17th parallel, and proceeded thence Westerly, principally over high sandstone tablelands, to the Charnley River, which had been explored and named by Mr. F. Hann, in 1899. Mr. Hann's position of this river and the neighbouring features were found to be geographically accurate. The party then traced the Charnley and Isdell Rivers Westerly from Hann's exploration to their respective points of exit in tidal waters. They also traced the course of the Sale River and tributaries (discovered by Mr. T. C. Sholl in 1865, but placed too far South by him), and the course of the Glenelg River (discovered by Sir George Grey in 1837, and also previously shown in error of latitude). They discovered and traced the course of the Calder River, and the head waters of the Prince Regent River; located the positions of the tidal waters extending inland from Collier and Doubtful Bays, and generally investigated the country lying to the South-West and South-East of the main watershed, which is situate about the 16th parallel of latitude, and to the Westward of the 126th Meridian. From the Northern fall of this watershed the Roe River was traced from its source to its exit into the tidal waters of Prince Frederick Harbour. The Moran River was discovered, and its course between the same points traced. The head waters of the King Edward River were discovered at the watershed, and this river was again picked up in about latitude 15° 15′, and its course traced Northerly to its exit into Napier Broome Bay. Portions of the shores of Admiralty Gulf, Vansittart and Napier Broome Bays, were closely examined with a view to selecting a suitable port for the district. The Drysdale was traversed from its mouth (on the 14th parallel of latitude) to the main watershed previously referred to on the 16th parallel. At the same time a sufficient number of points on the Carson River were located to enable that stream to be mapped with approximate accuracy. The Durack River was traced from the 17th parallel of latitude to its entrance into the tidal waters of Cambridge Gulf. The whole of the country drained by the rivers already enumerated was investigated as closely as practicable in an exploration of this description, all high points met with being ascended, and short excursions being made at right angles to the main line of travel wherever practicable. The exploration was completed on the 20th November, by the arrival of the leader and his party at the Pentecost River, at a point previously fixed by him on the 18th May. The practical results of the expedition consist of the discovery of a large area (six million acres) of basaltic pastoral country covered with blue grass, Mitchell and kangaroo grasses, and many varieties of top feed, lying principally in the neighbourhood of the Charnley, Calder, Sale, Roe, Moran, and Carson Rivers, with some extensive areas in addition situate on the Drysdale, and in smaller patches in the neighbourhood of the Durack and its tributaries. In addition the existence of suitable ports and routes of access to enable this country to be utilised for stock raising were ascertained. Many objects of scientific interest amongst the Flora and Fauna of the district were

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discovered and brought back by the party. A few aboriginal weapons and implements, and a large number of photographs of curious cave paintings were obtained. A considerable amount of information was also obtained with regard to the numbers, habits, and distribution of the aborigines of the country.

In the same year, 1901, a preliminary examination of the country between Kalgoorlie and Eucla was made by Mr. John Muir, the Inspector of Engineering Surveys, in connection with the proposed transcontinental railway. The object of the expedition was to obtain further information regarding that tract of country lying between the Coolgardie Goldfields and the South Australian border, South of the 31st parallel of latitude, with a view, in the first place, of determining the probable cost of constructing a railway through that country, and, secondly, of ascertaining the nature and resources of the country proposed to be crossed. Muir took with him three months' supply of provisions, eleven carrying camels, and five riding camels. The latter were required to explore the outlying country for as great a distance as possible on both sides of the line followed by the main caravan, and to search the surrounding country for water. Two were utilised on one side of the line of march, and two on the other side; the fifth was kept as a reserve. The expedition left Kanowna on the 16th May, followed the North-West side of the lake country as far as Kurnalpi, and from there turned South-East to Cardinia, a granite rock lying about 50 miles East of Bulong, which was reached on the 23rd. Here the camels were given a four days' spell, while Muir examined the country Westward towards Bulong, and two members of the party were sent ahead to see what the Jumannia water supply was like. A move was made to the latter place on the 28th, and thence the expedition proceeded to Goddard's Creek, about 60 miles further on, two men again being sent ahead to examine the prospects of finding water. While the caravan followed slowly the camel pad made by the advance party, Muir examined the country for about 10 miles on either side of the line of march. On the 31st the two men were met, who brought news that they had discovered a soak. On the 2nd June the creek was reached, the camels having been five days without water. Later on a dozen or more similar soaks were discovered, but the supply in every instance was very limited. Mr. C. H. Babington, who was Mr. Muir's chief assistant, found a good soak some 12 miles down the creek, and the main caravan was moved on to it on the 4th June. Muir meanwhile, with two men, three camels, and a week's provisions, went North to examine the country, having been informed that frequent rumours were heard from the natives of the existence of a "big water" never yet seen by white men, but supposed to be situated 20 or 30 miles East or South-East of Victoria Springs. Having, however, continued his excursion for over 50 miles without finding any water, he returned to camp on the 8th June. On the 10th June the country in the neighbourhood of the camp was explored, and, as a result of this examination, the camp was shifted, on the 11th June, to a soak

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nine miles Eastward, in the bed of the creek. Babington, who had been exploring ahead of the expedition, here rejoined the party, and reported that water was obtainable 30 miles down the creek. Another exploration Northward for water, commenced on the 16th, proved as fruitless as the former one, and on the 21st, Muir returned to the main camp on Goddard's Creek. Babington unfortunately had been equally unsuccessful to the Eastward. The leader of the expedition therefore decided to make for Eyre, about 150 miles to the South-East. On the morning of the 25th June the main caravan started for Yayoudle Rock, Babington, who was in charge, being instructed that, failing to find water there, he was to proceed to Eyre. On the same date Muir himself, with one man and two camels, started to examine the country along the probable course of the railway. Being unable to find any water, he also proceeded to Yayoudle Rock, which he reached on the 1st July, and where a small supply of water was found. On the following day he climbed the hills in the neighbourhood to look for the main caravan; on returning to camp he found Babington waiting for him there, who informed him that the caravan was some 20 or 30 miles on the road to Eyre. With all despatch Muir then pushed on to the latter place, reaching there on the 3rd July, and finding that the main party had arrived on the previous evening. From Eyre he sent the main caravan to Mundrabilla Station, on the coast, about 100 miles further Eastward, where water could be relied upon, while he, himself, with two men, started out to work the inland country. He left Eyre on the 6th July, and after travelling 70 miles North, went Eastward 100 miles, and next 30 miles Southward to Mundrabilla. Nothing of any moment occurred on this trip worth particularising, and on reaching Mundrabilla on the 14th, he found that the camel train had arrived the previous day, and that Babington, with one man, had gone on a previously arranged special trip, 60 miles out, in a Northerly direction. On the 17th Muir left, with one man and two camels, to examine the remaining portion of the line, from a point about 30 miles North of Mundrabilla, to Eucla, the main caravan travelling to the latter place along the coast. Muir arrived at his destination on the 19th, the caravan arriving on the 20th. On the 29th the return journey was begun. About 50 miles North from the coast, the Westward course commenced, in latitude 31deg. South. At Wadalynia Rock, on the 12th August, a splendid water supply was found, and on the 16th another still more plentiful. Goddard's Creek was reached on the 20th, and Bulong on the 29th. The total distance travelled was about 1,100 miles. The country traversed was mostly waterless, though well grassed and timbered, game—kangaroos, emus, and turkeys—being fairly plentiful in the vicinity of the rock-holes.

In April, 1903, Mr. F. H. Hann left Laverton to explore the country to the Eastward of that place. After an absence of 13 weeks, he returned to the starting point, and reported the discovery of a practicable stock route to the Warburton Ranges.

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On leaving Laverton, an Easterly course was kept as far as the 126th meridian, thence Northerly to the Townsend Range, which was reached on 30th June.

A fortnight was spent in the examination of the country to the Northward and West to Elder Creek. Mr. Hann reported it to be well watered and splendid pastoral country, containing upwards of a million acres. Mineral indications were noticed, whilst natives were also observed to be numerous amongst the ranges.

On the homeward journey only slight deviations were made from the outward route, Laverton being reached on the 8th August.

PART II.—DESCRIPTIVE.

I.—PHYSICAL FEATURES.

(Revised by Fred S. Brockman, Esq., Chief Inspecting Surveyor.)

The State of Western Australia embraces all that portion of the Continent of Australia and the adjacent islands lying to the West of the 129th meridian, and is bounded on the North, West, and South by the sea, its Western, North-Western, and Northern coast-lines being washed by the Indian Ocean, and the Southern coast by the Great Southern Ocean.

Coast-Line.—The coast-line to the North of the 18th parallel of latitude is deeply indented by gulfs and bays, whereas the whole of the coast South from that parallel is marked by long, straight, stretches, little broken by inlets. The total coast-line is, therefore, remarkably short, as compared to the immense size of the State.

The coast of the Southern and South-Western portions of the State is rising rapidly, which accounts for the low alluvial and sandy plains existing in places between the sea and the coastal ranges. These plains vary from a few hundred yards to 20 miles in width, and are interspersed with numerous small inlets, salt lakes, and swamps.

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Tides.—As might be expected on this great length of coast lying within both the temperate and tropical zones, there are very varied rises and falls of the tide. On the South and South-West coasts, and as far North as Shark Bay, the differences between high and low water points are very small. About the latitude of Fremantle these differences are practically dependent solely on the prevailing breezes, and not due to any direct tidal effect. Stokes, in his "Discoveries in Australia," Vol. I., page 31, says: "We found the greatest rise (of tide) only 31 inches; and here (Fremantle), as elsewhere on the Australian Coast, we observed the remarkable phenomenon of only one tide in the 24 hours." From Shark Bay Northward, the tides rapidly increase in range, although this increase is by no means uniform, being, apparently, largely influenced by the aspect that the various portions of the coast present to the ocean swell. Some of the differences between high and low water marks are: at Cossack, 18 feet; at Roebuck Bay, 30 feet; at King Sound, 46 feet; and at Cambridge Gulf about 28 feet at spring tides. At many intermediate points the tides differ very greatly from those recorded at the ports at present in use. It was recently found that spring tides at Napier Broome Bay only gave a difference between high and low water marks of 11 feet, whilst in the adjoining inlet (Vansittart Bay) this difference is at least 30 feet.

Bays, Gulfs, etc.—The principal inlets, beginning from the North, are: Cambridge Gulf, Napier Broome Bay, Vansittart Bay, Admiralty Gulf, Montague Sound, York Sound, Brunswick Bay, Camden Sound, Collier Bay, King Sound, Beagle Bay, Roebuck Bay, La Grange Bay, Port Walcott, Nickol Bay, Exmouth Gulf, Shark Bay, Champion Bay, Cockburn Sound, Koombana Bay, Geographe Bay, Flinders Bay, King George Sound, Bremer Bay, and Esperance Bay. With the exception of Princess Royal Harbour (the inner harbour of King George Sound) the principal anchorages used to the South of the 19th parallel of latitude are open roadsteads, which, as a rule, are only partially protected; but the holding grounds of these are fairly good, and accidents seldom happen to vessels properly found; whilst fine harbours have been artificially provided at Fremantle, near Cockburn Sound, and at Bunbury, in Koombana Bay.

Capes.—The principal capes are: Capes Domett and Dussejour, at the entrance of Cambridge Gulf: Cape Londonderry, which is the most Northerly point of the State; Cape Talbot; Cape Bougainville, lying between Admiralty Gulf and Vansittart Bay; Cape Voltaire, which is the Western boundary of Admiralty Gulf; Cape Torrens, at the entrance to York Sound; Cape Lévêque, the Southern boundary of King Sound; Sloping Head, to the West of Nickol Bay, well-known to the Roebourne pearlers; North-West Cape, which forms the Western boundary of Exmouth Gulf; Cape Peron, in Shark Bay; Steep Point, situated on the Southern entrance to

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Shark Bay, which is the most Westerly point of the continent; Capes Naturaliste and Leeuwin at the South-Western extremity of the continent, and Point D'Entrecasteaux, West Cape Howe, Peak Head, Hood Point, Cape le Grande, and Cape Arid on the Southern coast.

Islands.—The Northern coast, between Capes Lévêque and Londonderry, is fringed with numberless islands. Some of these are of considerable area, amongst the largest being Augustus Island, near Camden Sound, and Bigge Island, to the North of York Sound. Very few of these islands have been closely examined, but, as seen from the sea, they appear to be principally of sandstone formation, and are probably of the same rugged nature as the sandstone area of the neighbouring coast-line. Abreast of the coast, North-Easterly from North-West Cape, there are also large numbers of islands, consisting of those known as Dampier's Archipelago, Barrow Island, and some others. These are principally of granitic formation, and some of them are fairly well grassed. Amongst the other important islands off the coast are Dirk Hartogs, Dorre (*Barren*), Bernier, and Babbage Islands in Shark Bay, and the Houtman Abrolhos, off Champion Bay, on which deposits of guano have been found. This valuable fertiliser has also been obtained from the Lacepede Islands, and is found on some other small islands amongst the Northern groups. On the South-West coast the only islands of importance are Rottnest and Garden Islands, off Fremantle; and off the Southern coast, between Esperance Bay and Point Dempster, the great cluster of small islands known as the Archipelago of the Recherche.

Mountains.—The mountains are not remarkable for their height, though many of them, rising abruptly from low-lying plains, present a striking appearance. Beginning at the North, the principal ranges of the Kimberley District are: The Princess May Range, stretching South-Easterly from York Sound, in which the highest point is Mount York, probably reaching an altitude above 3,000 feet, although the highest point of this range of which the altitude has been accurately obtained is Mount Hann, with an altitude of 2,800 feet; to the South of this the King Leopold Range stretches South-Easterly from the shores of Collier Bay, which, although very boldly defined on the Southern side, nowhere reaches an altitude exceeding 2,400 feet. Of the North-Western portion of the State the highest range is the Hamersley, lying between the Fortescue and Ashburton Rivers. Mount Bruce, in this range (the highest known point in the State), reaches an altitude of 3,800 feet. In the South-West, the most important range is the Darling, which stretches in a nearly due North and South line from Yatheroo at its Northern extremity to Point D'Entrecasteaux on the South coast. This range lies parallel to, and from 18 to 20 miles distant from, the Western sea-board, and is the most important range in the State by reason of its effect on the climatic conditions of the most closely

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Avon River, York.

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settled area. The highest point in this range is Mount William, in the Murray District, which has an altitude of about 1,700 feet. The Stirling Range, situated about 40 miles to the North-East of Albany, is the loftiest range in the Southern portion of the State, and, being perfectly isolated and rising abruptly from a low-lying coastal plain, is visible for a great distance. The highest point in this range is Bluff Knoll, which reaches an altitude of 3,640 feet. No active volcanoes exist, but the craters of several extinct ones are reported to have been discovered in the North-West and in the Kimberley District in the neighbourhood of the 16th parallel of latitude. The appearance of the whole of the country, with perhaps the exception of some parts of the Kimberley District, indicates a condition of remarkable quiescence as far back as the carboniferous epoch.

Rivers.—The principal rivers are: in the North, the Ord, with its tributaries, the Denham, Bow, Negri, and Panton; the Pentecost, with its tributary, the Chamberlain, the Durack, Drysdale, King Edward, Prince Regent, Charnley, Isdell; and the Fitzroy, with its tributaries, the Margaret River and Christmas Creek. In the North-West, the DeGrey, with its tributaries, the Oakover, Shaw, and Strelley; the Yule, the Fortescue, and the Ashburton, with its tributaries, the Henry and Hardy. Then, falling to the Western coast, the Gascoyne, with its tributary, the Lyons; the Murchison, with its tributary, the Sanford; the Greenough, the Swan, on which is situated the capital of the State, and which, above tidal waters, is called the Avon; the Murray, the Collie, and the Preston. And lastly, on the Southern coast, the Blackwood, Warren, Frankland (with its tributary, the Gordon), Kalgan, Pallinup, and Phillips Rivers.

Lakes.—There are no lakes of any considerable importance in the State. Between the Darling Range and the coast there are a few salt-water lagoons, and many small fresh-water lakes, the majority of which are nothing more than swamps during the dry season, and none of them are of any economic importance. The so-called lakes in the interior of the State, which are frequently of very considerable area, are, except after the occasional heavy rains, merely immense salt marshes or clay pans.

Contour of the Country.—That part of the State lying to the North of the 19th parallel of latitude may be described as mountainous, consisting of alternating high and lower lying plateaux; the highest country here is principally of sandstone formation. The North-West Division and much of the Gascoyne Division is a distinctly mountainous country, the rangés here being principally granitic. A large proportion of the South-Western and Southern sea-boards is of flat sandy character, with indications of a recent geological formation, and may be described as a vast forest, principally timbered with jarrah, white and red gums, and karri, most of

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which timbers are of great commercial value. From some points on the Western sea-board settlement has now extended for about 600 miles inland, but, from very complete information furnished by explorers and prospectors, it is apparent that no considerable portion of the interior lying between the 19th and 31st parallels of latitude and between the 121st and 129th meridians of longitude is suitable for any class of settlement except in connection with the development of the mineral resources. This area may be described as a great table-land, with an altitude of from one to two thousand feet above sea level, the surface of which consists largely of sand dunes, though in many parts of it there are large areas of clayey soils. Between the 30th parallel of latitude and the Great Australian Bight, much of the country is of limestone formation, and here there are immense areas of grass land, which only await the discovery of subterranean water to make them amongst the most productive areas of the State.

2.—GEOGRAPHY.

Position.—Western Australia, as defined by Her Majesty's Commission, dated 10th July, 1873, includes all that portion of the Australian Continent "extending from the parallel of thirteen "degrees thirty minutes South latitude to West Cape Howe, in the "parallel of thirty-five degrees eight minutes South latitude, and "from Dirk Hartogs Island, on the Western coast, in longitude "one hundred and twelve degrees fifty-two minutes, to one hundred "and twenty-nine degrees of East longitude, reckoning from the "meridian of Greenwich, including all the islands adjacent in the "Indian and Southern Oceans, within the latitudes aforesaid of "thirteen degrees thirty minutes South, and thirty-five degrees "eight minutes South, and within the longitudes aforesaid of one "hundred and twelve degrees fifty-two minutes, and one hundred "and twenty-nine degrees East, from the said meridian of Green-"wich."

Area.—The greatest length of this territory, from Cape Londonderry in the North to Peak Head (South of King George Sound) in the South, is 1,480 miles, and its breadth from Steep Point, near Dirk Hartogs Island, on the West, to the 129th meridian, on the East, about 1,000 miles, containing, according to the latest computations, an area of 975,920 square miles, or 624,588,800 acres.

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The length of the coast-line, following known indents, is estimated to be approximately 5,200 miles.

The following facts will assist in forming an idea of the magnitude of this area. The figures relating to foreign countries are taken from the "Statesman's Year Book" for 1903. As a whole, the Continent of Australia is estimated to contain 2,946,691 square miles, and Western Australia, therefore, occupies nearly one-third of the Continent, being about equal in size to all the following European States if joined together:—

	Square miles.
Germany	208,830
France	207,054
Hungary	125,430
Norway	124,130
United Kingdom	120,980
Italy	110,550
Portugal	36,040
Switzerland	15,980
Denmark (including Faroe Is.) ...	15,360
Belgium	11,370
Total	975,724 sq. miles

The area of the whole of Europe is 3,837,083 square miles, whilst the grand total of the British Dominions and Protectorates is 11,146,084 square miles, with a population of 396,968,798.

Not many years ago the occupied portion of the State was comprised in an area of about 1,200 miles in length, by about 150 in average breadth, lying between Albany (King George Sound) in the South, and Wyndham (Cambridge Gulf) in the East Kimberley District, in the North; namely, between the 15th and 35th parallels of South latitude. However, since the discovery and exploration of the Central and Eastern Districts Goldfields, vast tracts of country once entirely unknown have been opened up and occupied far in the interior, and at present flourishing mining townships exist from 400 to 500 miles inland.

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The Following is a List of Declared Townsites:—

Name.	When declared.	Lat. S.		Long. E.	
		°	′	°	′
Abbotts	3rd August, 1900	27	30	120	36
Albany	*July, 1831	35	2	117	54
Amherst (Smith's Mill)	18th April, 1902	31	55	116	6
Anaconda	25th March, 1904	28	57	121	46
Arrino	4th March, 1904	29	27	115	38
Augusta	11th May, 1830	33	40	115	10
Austin	31st May, 1895	27	38	117	51
Balagundi	28th August, 1896	30	44	121	41
Balgarri	18th February, 1898	30	30	121	7
Balingup	17th June, 1898	33	46	115	59
Balla Balla	8th July, 1898	20	42	117	45
Bamboo	14th June, 1895	20	55	120	14
Bardoc	5th June, 1896	30	20	121	17
Bejoording	29th September, 1899	31	22	116	37
Beverley	*1830	32	47	116	51
Black Flag	2nd July, 1897	30	33	121	13
Bonnie Vale	13th August, 1897	30	51	121	11
Boogardie	28th January, 1898	28	42	117	46
Boorabbin	22nd July, 1898	31	12	120	20
Boorara	10th December, 1897	30	49	121	39
Boulder	4th December, 1896	30	47	121	30
Boyanup	12th October, 1894	33	28	115	43
Boyup	9th February, 1900	33	49	116	23
Bridgetown	4th June, 1868	33	57	116	8
Broad Arrow	18th September, 1896	30	27	121	20
Brookton, *see* Seabrook		32	22	117	1
Broome	27th November, 1883	17	57	122	15
Broome Hill	28th May, 1897	33	49	117	37
Buchanan	11th December, 1903	33	12	117	17
Bulla Bulling	18th March, 1898	31	1	120	54
Bulong	29th November, 1895	30	46	121	47
Bunbury	*February, 1841	33	18	115	38
Burbanks	15th October, 1897	31	3	121	9
Burracoppin	19th March, 1891	31	24	118	30
Busselton	*June, 1837	33	39	115	21
Callion	27th August, 1897	30	7	120	35
Capel	9th July, 1897	33	32	115	34
Carnarvon	23rd January, 1883	24	42	113	39
Chidlow's Well	27th November, 1883	31	52	116	16
Clackline	13th August, 1897	31	43	116	32
Cleaverville	22nd December, 1892	20	39	117	0
Collie	3rd December, 1897	33	21	116	8
Cookernup	7th September, 1894	32	59	115	54
Coolgardie	24th August, 1893	30	57	121	10
Coolup	3rd February, 1899	32	46	115	52
Cossack	25th May, 1872	20	40	117	8
Cranbrook (W.A. Land Company)	3rd February, 1899	34	16	117	32
Cuballing (do.)	3rd Ferbuary, 1899	32	47	117	9
Cuddingwarra	13th December, 1895	27	22	117	46
Cue	17th August, 1893	27	25	117	52
Davyhurst	28th June, 1901	30	7	120	39
Day Dawn	25th May, 1894	27	27	117	50
Denham	6th May, 1898	25	45	113	21
Denison	†	29	16	114	56
Derby	27th November, 1883	17	18	123	40
Dongara	*1852	29	17	114	53
Donnybrook	12th October, 1894	33	33	115	48
Doodlekine	19th March, 1891	31	35	117	52
Drakesbrook	22nd March, 1895	32	52	115	55
Dundas	24th May, 1895	32	23	121	47
Dunnsborough	29th April, 1879	33	34	115	5
Dunnsville	17th December, 1897	30	38	120	53
Esperance	15th December, 1893	33	51	121	50
Eucla	12th November, 1885	31	42	128	53
Euro	4th April, 1902	28	30	122	23
Feysville	8th July, 1898	30	58	121	37
Fremantle	‡	32	3	115	45
Gabanintha	18th November, 1898	26	55	118	36
Geraldton	‖	28	46	114	36
Gindalbie	11th September, 1903	30	19	121	44

* Townsite surveyed. † No record. ‡ No record; first town lots sold 5th September, 1829. ‖ No record; first town lots sold June, 1850.

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List of Declared Townsites—continued.

Name.	When declared.	Lat. S. °	Lat. S. ′	Long. E. °	Long. E. ′
Gingin	12th December, 1871	31	13	115	47
Gladstone	19th March, 1891	25	45	114	15
Gledhow	11th March, 1898	35	2	117	51
Goongarrie	14th June, 1895	30	3	121	9
Gordon	8th October, 1897	30	27	121	36
Granville	31st August, 1869	31	13	115	45
Grass Valley	9th September, 1898	31	39	116	47
Greenbushes	3rd November, 1899	33	50	116	3
Greenbushes, North	26th May, 1899	33	49	116	13
Guildford	*	31	53	116	1
Gullewa	14th January, 1898	28	39	116	21
Gwambygine	7th February, 1902	31	57	116	50
Hall's Creek	23rd November, 1894	18	15	127	46
Hamel	3rd February, 1899	32	54	115	55
Hester	18th August, 1899	33	54	116	9
Hopetoun	15th February, 1901	33	37	120	8
Horseshoe	22nd February, 1901	25	27	118	35
Jackson	5th March, 1897	30	12	119	8
Kalamunda	13th December, 1901	31	58	115	52
Kalgoorlie	7th September, 1894	30	45	121	30
Kambalda	10th December, 1897	31	10	121	15
Kanowna	14th December, 1894	30	37	121	36
Katanning	16th May, 1898	33	38	117	31
Kelmscott	† June, 1831	32	7	116	2
Kintore	12th November, 1897	30	36	121	2
Kirupp	27th September, 1901	33	42	115	53
Knutsford	26th September, 1889	30	55	119	
Kojonup	4th May, 1900	33	50	117	59
Kookynie	19th January, 1900	29	20	121	26
Kunanalling	5th June, 1896	30	41	121	5
Kundana	24th September, 1897	30	42	121	15
Kundip	31st January, 1902	33	41	120	11
Kurnalpi	25th January, 1895	30	32	122	15
Kurrajong	16th June, 1899	28	42	121	6
Laverton	6th July, 1900	28	38	122	24
Lawlers	24th July, 1896	28	5	120	12
Lennonville	30th September, 1898	27	58	117	49
Leonora	16th April, 1898	28	53	121	20
Lindon	29th January, 1897	29	19	122	26
Londonderry	30th August, 1895	31	5	121	8
Lynton	1st March, 1854	28	12	114	18
Mainland	10th June, 1898	27	35	117	54
Malcolm	10th September, 1897	28	56	121	31
Mallina	28th February, 1896	20	52	118	13
Manjimupp	13th February, 1903	34	14	116	12
Marbelup	24th August, 1900	35	0	117	44
Marble Bar	13th July, 1893	21	11	119	42
Mariginiup	4th March, 1904	31	44	115	49
Mastering	6th December, 1895	31	36	117	3
Meekathara	25th December, 1903	27	46	120	42
Melville	1st May, 1890	(*See* Nooingal)			
Menzies	16th August, 1895	29	41	121	2
Merolia (now Burtville)	25th April, 1902	28	47	122	40
Merriden	19th March, 1891	31	28	118	18
Mertondale	28th June, 1899	28	40	121	32
Moojebing	4th February, 1892	33	35	117	26
Moora	12th April, 1895	30	37	116	0
Moorumbine	24th April, 1884	32	32	117	9
Mount Barker	20th January, 1899	34	36	117	39
Mount Ida	6th May, 1898	29	3	120	30
Mount Kokeby	20th June, 1902	31	12	116	59
Mount Magnet	18th January, 1895	28	3	117	49
Mount Margaret	14th May, 1897	28	49	122	10
Mount Morgans	15th December, 1899	28	46	122	4
Mulgarrie	8th October, 1897	30	23	121	31
Mullalyup	15th March, 1901	33	44	115	56
Mullewa	13th July, 1894	28	33	115	31
Mullewa Junction	27th November, 1903	28	49	114	41
Mulline	22nd October, 1897	29	47	120	32
Mulwarrie	14th September, 1900	29	59	120	33
Mundaring	20th May, 1898	31	54	116	10

* No record: first lot sold September, 1830. † Townsite surveyed.

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List of Declared Townsites—continued.

Name.	When declared.	Lat. S. °	Lat. S. ′	Long. E. °	Long. E. ′
Mundijong	22nd December, 1893	32	17	116	0
Munngari	4th March, 1903	30	51	121	17
Murrin Murrin	16th February, 1900	28	56	121	49
Nannine	20th April, 1893	26	53	118	19
Nannup	9th January, 1890	33	59	115	45
Narrogin	4th June, 1897	32	54	117	9
Newcastle	1st October, 1860	31	34	116	27
Niagara	27th November, 1896	29	22	121	24
Noongal	17th December, 1897	27	50	116	47
Norseman	24th May, 1895	33	11	121	47
Northam	*1833	31	40	116	40
Northampton	19th February, 1864	28	22	114	37
Nullagine	15th September, 1899	21	54	120	4
Nunngarra	4th December, 1903	28	5	119	15
Onslow	29th October, 1885	21	42	114	57
Paddington	5th February, 1897	30	29	121	20
Pakington	1st March, 1854	28	13	114	17
Parker's Range	‖	31	39	119	35
Parkerville	30th November, 1900	31	53	116	7
Paynesville	9th March, 1900	28	1	118	29
Peak Hill	26th November, 1897	25	39	118	42
Perth	† 12th August, 1829	31	57	115	50
Pindar	22nd February, 1901	28	29	115	48
Pingelly	4th February, 1898	32	32	117	5
Pinjarra	30th September, 1898	32	37	115	35
Pinwernying	4th February, 1892	33	39	117	31
Popanyinning	25th March, 1904	32	40	117	8
Poriell	17th November, 1899	26	56	118	35
Port Hedland	23rd October, 1896	20	19	118	34
Preston	15th December, 1899	33	31	116	0
Princess Royal	15th April, 1904	32	8	121	48
Puntaping	13th April. 1893	33	18	117	20
Quindalup	17th November, 1899	33	40	115	9
Ravensthorpe	18th January, 1901	33	35	120	3
Rockingham	3rd June, 1847	32	16	115	45
Roebourne	17th August, 1866	20	46	117	8
Rothesay	18th November, 1898	29	17	116	54
Sawyers' Valley	28th October, 1898	31	54	116	12
Seabrook (now Brookton)	18th January, 1895	32	22	117	1
Serpentine	22nd December, 1893	32	21	115	59
Shellborough	25th January, 1895	20	1	119	38
Sir Samuel	14th May, 1897	27	37	120	33
Southern Cross	20th March, 1890	31	14	119	21
Tampa	5th February, 1897	29	13	121	24
Tambellup	16th February, 1900	34	1	117	39
Tammin	26th May, 1899	31	37	117	29
Tenterden	27th April, 1893	34	21	117	33
Toodyay	*1833	31	31	116	21
Trafalgar	27th September, 1901	30	47	121	31
Tuckanarra	17th February, 1899	27	7	118	3
Wagerup	6th June, 1899	32	58	115	54
Wagin	16th May, 1898	33	18	117	20
Wallaberi	8th January, 1904	17	33	123	40
Wallabup	20th January, 1899	32	5	115	51
Waverley	14th October, 1898	30	14	120	58
Widgiemooltha	3rd December, 1897	31	29	121	35
Williams	8th October, 1897	32	59	116	51
Wiluna	15th April, 1898	26	37	120	20
Windanya	1st October, 1897	30	22	121	16
Wonnerup	16th July, 1856	33	37	115	24
Woodanilling	4th February, 1892	33	33	117	25
Woodarra	14th January, 1898	27	56	121	18
Wyndham	2nd September. 1886	15	27	128	5
Yalgoo	24th January, 1896	28	23	116	43
Yarri	16th January, 1903	29	46	122	23
Yerilla	13th August, 1897	29	29	121	35
York	‡	31	53	116	47
Youndegin	1st September. 1892	31	47	117	19
Yundamindera (The Granites)	14th June, 1901	29	7	122	2
Yundurup	6th May, 1898	32	33	115	47
Yunndaga	4th March, 1904	29	45	121	3

* Townsites surveyed. † The first stone laid. ‡ No record; first town lot sold July, 1835.
‖ No record.

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1. Natives preparing for Corroboree. Broome.

2. Aboriginal Weapons, Museum, Perth.

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LATITUDES AND LONGITUDES OF THE CAPITALS OF THE AUSTRALASIAN STATES.

State or Colony.	Capital City.		
	Name.	Latitude S.	Longitude E.
		° ′ ″	° ′ ″
Victoria	Melbourne ..	37 49 53	144 58 32
New South Wales	Sydney ..	33 51 41	151 12 23
Queensland	Brisbane ..	27 28 0	153 1 36
South Australia	Adelaide ..	34 55 38	138 35 4
Western Australia	Perth	31 57 10	115 50 26
Tasmania	Hobart ..	42 53 25	147 19 57
New Zealand	Wellington ..	41 18 1	174 46 38

3.—ABORIGINES OF WESTERN AUSTRALIA.

The theory of identity of origin of the several branches of the Australian Aboriginal race appears to be very generally accepted by those who have investigated this subject. The complex system of marriage prevailing throughout the whole of the Australian tribes furnishes strong evidence on this point, and although, as mentioned by Sir John Forrest, many differences exist between the customs of the natives of the interior and those of the coastal districts, these differences are not considered of such a nature as to prove a dissimilarity of origin, but appear to be due mainly to variations in local circumstances and conditions, the opinion held by the majority of writers being that the inhabitants of the continent are governed by laws and customs that are essentially the same throughout.

Additional evidence of a common origin is furnished by the strong similarity observable in the physical characteristics of the natives of different parts of Australia, any marked departure from the type being largely attributable to environment, more particularly perhaps as regards the abundance or scarcity of food and water.

As to the source from which the original race was derived, many opinions have been expressed by more or less competent authorities; but, as would be expected from the nature of the subject, the majority of these opinions are almost entirely of a hypothetical character, and deal with questions which appear altogether too speculative to warrant extensive treatment in an official publication of this nature.

Reference may, however, be made in passing to two of the theories that have been advanced, the one based largely on ancient

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Indian tradition, the other mainly on biblical records, each being supplemented by modern researches in India, Eygpt, and other countries of the East.

According to the former theory the mainland of Africa and Asia once had a comparatively unbroken continuity South-Easterly to Australia, comprising, according to ancient Indian tradition, an enormous continent, which has been designated Lemuria, on the supposition that it was the original home of the Lemurs. The inhabitants of this vast continent are said to have belonged to what, in this tradition, is known as the third race, an imperfectly developed type of human being, and from these Lemurians the aboriginal natives of Australia are supposed to have been originally derived, the slow progress made by them in the march of civilisation being attributed to the isolation to which the island continent of Australia was subjected by the submergence of the greater portion of prehistoric Lemuria.

The second theory above referred to, regards Babylonia as being practically the cradle of the human race, and proceeds to trace the dispersion therefrom of the Hamites, the reputed progenitors of the black races.

According to this theory the black races, travelling along the Northern shores of the Arabian Sea into the mountains of Southern India, were pressed on by the waves of tribal migration and peopled successively the valley of the Ganges, the Dekkan, Further India, Ceylon, the Andaman Islands, the Sunda Isles, and thence Australia and Tasmania.

Modern research in the East appears to have thrown considerable light on many of the questions involved in these and other theories, but, intensely interesting as the subject admittedly is, the whole matter is, as previously pointed out, too purely speculative to receive more than the briefest notice in these pages. It may, however, be mentioned that certain black tribes of India—the Dravidians—have been found to resemble to a slight extent those of Australia, both in appearance and language, while some of the Indian tribes have class marriage laws somewhat similar to those found amongst the aboriginal natives of Australia. The recent discoveries of both Dravidian and Egyptian boomerangs may also be referred to as of great interest in connection with this subject, those discovered in Egypt corresponding exactly with the true flat hunting boomerang of the Australian aboriginal.

In their primitive state, before contact with the white races, Grey, a keen observer, reports that in disposition and character the aborigines are as variable as Europeans, as apt and intelligent as any other race of man, and subject to the same passions, appetites, and affections.

Stokes says of them that, although ignorant and incurious to the last degree, they were, as a rule, suspicious rather than treacherous, and were not insensible to those acts of kindness which they could comprehend as such.

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Western Australian Aborigines.

1. Man, Yalgoo, age 50, height 5ft. 9in. 2. Woman, Yalgoo, age 17, height 5ft. 2in.
3. Kimberley Natives. 4. Man, Beagle Bay, age 60, height 5ft. 8in.
5. Man, Dry dale River, Kimberley.

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All explorers, indeed, with the single exception, perhaps, of Giles, agree in their testimony as to the simple confidence exhibited towards them by the wild natives.

Eyre says that "they are truthful and honest towards each other and to Europeans, and are not more virulent in their passions, or more vicious in their propensities, than are the larger number of the lower classes in so-called civilised communities; they will willingly do anything for a person to whom they are attached, and by kindness an influence can be obtained over them amounting almost to authority." They are quick of apprehension, show remarkable power of perception, are shrewd, ready, tractable, have a keen sense of the ridiculous, a great talent for mimicry, learn English easily, and the first white settlers to come in contact with them speak of them as inoffensive, and easily rendered tractable and well disposed by kind and consistent treatment.

Little short of the average European in height, the Australian native is inferior to him in muscular development, his limbs being in many instances lean and thin, combined sometimes with abnormal corpulence. The bodies are delicately formed, and there is the frequent absence of calves to the legs, so characteristic of some of the dark races. The cranial formation, somewhat finer in the male than in the female sex, is, on the whole, narrow and lengthy, with high cheek bones, the lower portion of the forehead about the brows projecting. The nose, narrow above, thereby causing the eyes to appear drawn together, becomes broader and somewhat squat further down. The ears are inclined a little forward, the mouth is large and unshapely, while the teeth are, on the contrary, fine and white, the upper row, like the upper lip, mostly overlapping the lower. The jaw-bone is contracted, the chin small, and the complexion oftener coffee-brown than actually black. The pitch-black hair is somewhat curly, without, however, being woolly, and, when cleaned from the mass of grease and dirt that usually clogs it, is fine and glossy. The duration of life rarely exceeds 50 years. These particulars regarding the physique and appearance of the natives of this Continent, taken from the description by Mr. Wallace, apply, in the main, to the aboriginal tribes inhabiting Western Australia. The average height and girth of 50 aboriginals measured at Rottnest Prison, where natives from all parts of the State are confined, were found to be 65¼ and 33¼ inches respectively.

Stokes describes them as having "very quick and deep-set eyes, a rapidly retiring forehead, great enlargement of the frontal sinus, and the flat nose and thick lips of savage races. A great disproportion exists between the upper regions of the body and the lower extremites. They have very prominent chests, combined with a great want of muscular development."

As would be naturally concluded from the more favourable climatic conditions and the greater abundance of food and water,

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the natives in the Northern and North-Western portion of the State are superior in physique to those of the South-Western and Central districts.

Whether the occupation of the State by white settlers has proved beneficial or injurious to its original inhabitants is a *quæstio vexata* which had better, perhaps, be left untouched, as the evidence, in the case of the semi-civilised natives, is extremely unsatisfactory and contradictory.

Their past history and present habits do not appear to afford much ground for hopefulness as to their probable future. Turned off their natural hunting grounds, they necessarily lack their accustomed means of existence, and have consequently been prone to take revenge for either real or imaginary wrongs; a course which has naturally led to retributive retaliations on the part of the settlers.

Although persons are forbidden by law to supply aboriginals with intoxicating liquors, there is no doubt that in the neighbourhood of towns and in the South-Western District the consumption of strong drink by the natives is considerable. This, with other degrading vices, will undoubtedly prove their ruin and lead to their ultimate extinction, as, under these evil influences, they are at present rapidly decreasing in number in the settled districts.

The natives are protected in the matter of service to whites by laws which insist on definite contracts equally binding on employers and employees, and illegal unless witnessed by a Justice of the Peace, one of the protectors appointed by the Governor, or some other person appointed by the District Resident Magistrate. The Home Government have always acknowledged their duty to the natives, and every attempt has been made by the Colonial Government to fulfil that obligation. In 1871 the Legislative Council reported that it was desirable to appropriate grants of land to aboriginals. In 1875 an Act was passed giving powers to the principals of native industrial institutions to act as trustees to orphan native children, and in 1877 a reserve of 50,000 acres was made in the Murchison Valley for the benefit of the aboriginals, as well as 100,000 acres on the Upper Gascoyne. The latter, however, was subsequently (1897) withdrawn, and 100,000 acres on the Forrest River, Kimberley, substituted for it. In 1886 an Act was passed authorising the establishment of a Board for the better protection of the aborigines and the management of aboriginal affairs, and to amend the law relating to contracts with and other matters affecting aboriginal servants.

In 1897 a Bill, which went still further, was passed by both Houses of the Legislature. By this enactment the control of the aborigines was transferred from the irresponsible Board to a sub-department of the State, under the control of a responsible Minister of the Crown, provision being made for the appropriation of a sum of £5,000 per annum for the use of the department; the duties of the department were to apportion the moneys above mentioned, so as to distribute blankets and other relief, to provide for

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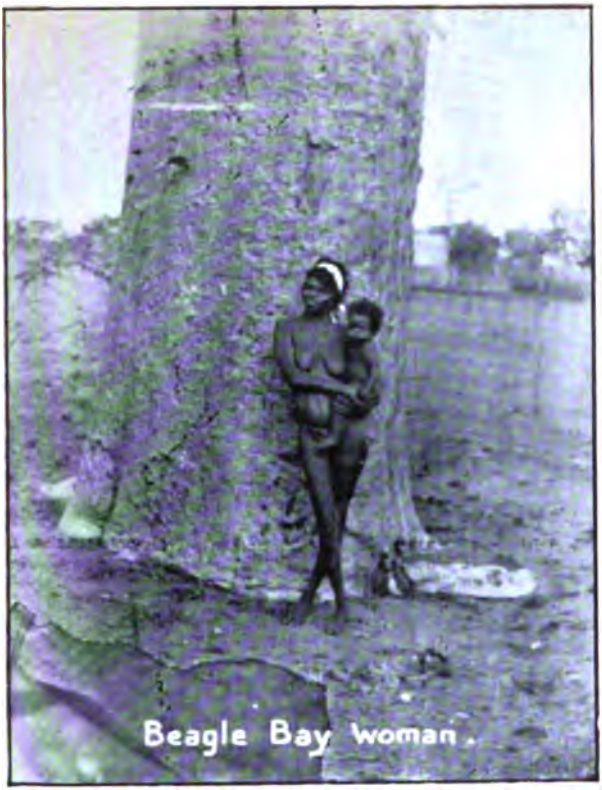

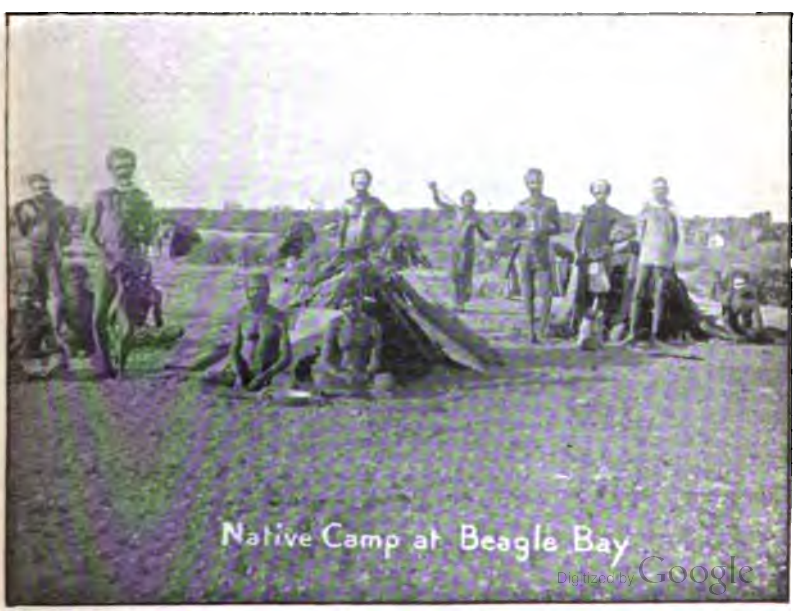

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Western Australian Aborigines.

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the custody of the children of aboriginals, to provide medical assistance and comforts to sick, aged, and infirm natives, to manage the reserves, and to exercise a general supervision and care over the native population of the State.

This sum, however, was at once found to be quite inadequate, and the Legislature has each year voted a further £5,000, which amount was increased in 1903 to £6,500, which is found none too much, the growth of settlement having apparently starved out many of the aborigines in the newly settled areas.

Fortunately also, for the natives, private and religious efforts have never been wanting to ameliorate their condition.

As early as 1846 a Benedictine Mission was commenced, at what is now called New Norcia, by a Spanish Monk, the Reverend Father Dom Rosendo Salvado, O.S.B., afterwards consecrated Bishop of Port Victoria, North Australia; and, though labouring at first under what then appeared almost insuperable difficulties, his efforts have been long recognised as having ultimately culminated in an unqualified success.

The Mission was established as an Abbey Nullius, and a Prefecture Apostolic, by His Holiness Pope Pius IX., on the 12th March, 1867.

Since the lamented death (in 1900) of Bishop Salvado, after a life of self-sacrifice wholly devoted to the interest and benefit of the aborigines, the mission has been under the charge, as Superior, of the Right Rev. Fulgentius Torres, O.S.B.

The following information in connection with the Mission, kindly furnished by Father Torres, is given in his own words:—

"The object of this Mission has ever been to inculcate the precepts of Christianity and confer the advantages of civilisation on the aborigines of Western Australia. Since its foundation on the Victoria Plains a considerable number of wild natives from various districts of the State have been civilised, in the full sense of the word, and have received instructions in the tenets of the Roman Catholic religion. There are at present residing at New Norcia and its out-stations, Marah and Wyening, about 200 aborigines and half-caste natives, who are all well lodged, clothed, educated, and supplied with every necessary by this charitable institution, while a number of the males are, in return for their manual labour, receiving weekly or monthly wages from the manager of the Mission."

"The Mission comprises a cruciform church, dedicated to the Holy Trinity, built of stone, 160 feet long, a large monastery, and over 50 other buildings of burnt bricks and stone, including a steam flour mill and factories, where all the clothing, boots, shoes, etc., used at the mission and its outlying stations, are made by the brothers and natives. There are also 22 cottages for the use of the married aborigines and half-castes, several large dwelling-houses, orphanages, and two separate schools for

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native boys and girls, who, when they are of age, are mutually engaged according to their own free will or choice, and embrace the Christian marriage state just like other perhaps more highly civilised persons. After marriage they either settle in the Mission village or voluntarily leave it at any time to seek employment elsewhere amongst the settlers or farmers throughout the State."

"Over 1,500 acres of land have been cleared, and about 800 acres are yearly under cultivation at New Norcia and its out-stations. There are within the boundaries of the Mission, postal, telegraph, and money order offices."

"In addition to their work for the aborigines, the Benedictine Fathers of New Norcia have ever devoted themselves to ministering to the spiritual wants of their co-religionists residing at Victoria Plains and Bindoon. However, by a decree of *Propaganda Fide*, dated 27th April, 1903, the spiritual jurisdiction of the Abbey was made to include all Catholics between the boundary of the diocese of Geraldton and 31° 20′ S. lat., and from the sea to 120° E. long."

"The number of aborigines and half-castes residing at the Mission on the 1st January, 1904, was as follows:—

"Married (native men and women)	48
Their Children (boys and girls)	40
Other native boys under 14 years of age ...	20
Other native boys over 14 years of age ...	15
Aboriginal and half-caste girls under 14 ...	25
Native and half-caste girls over 14	10
Aborigines, men (widowers)	2
Aboriginal (1) and half-caste (1) women (widows)	2
Aboriginal man over 70 years	1
Total	163"

A mission for the benefit of the aborigines of the Kimberley district was founded in 1890 by the Right Rev. Dr. Gibney, the present Roman Catholic Bishop of Perth. This mission is under the charge of the monks of La Trappe, and is situated at Beagle Bay, near Broome.

On the 11th April, 1892, eight missioners, under the superintendence of Abbot Janny, landed in this State, and since then have continued the work with vigour. The whole staff of the mission now comprises five priests and seven lay brethren.

"For many years," states the manager of the Swan Native and Half-caste Mission, "the Church of England has made provision for the training of native and half-caste children at the Mission, 'Middle Swan,' near Midland Junction. Here those children who are handed over to the Church, sometimes as infants, are housed and educated until able to go out and earn their living. At present there are 36 in the Institution, ranging in age from five years up to 17. When the boys reach seven years of age, they are usually transferred to the Swan Orphanage, a neighbouring institution of

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Western Australian Aborigines.

1. Man, Fitzroy River, age 25, height 5ft. 9in. 2. Woman in mourning, Broome. 3. Kimberley Natives. 4. Man, Broome, age 25, height 5ft. 9½in.

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the Church, where the dark-skinned inmates have exactly the same status as their lighter coloured companions. The control of the Mission is in the hands of the Orphanage's committee, the local manager being the clergyman of the parish, whilst there are a matron and a teacher resident at the Mission. The girls do the work of the place, including the gardening and dairying, and frequently gain excellent reports from their mistresses when they go out to service. Old girls, several of whom are married, are continually to be seen at the Mission, which they consider they are privileged to regard as their home. Quite recently the Mission buildings were extensively repaired and enlarged; and at present there is ample accommodation for further inmates; but it is not always possible to induce native women to consign their little ones to the care of others, however much it may be to the advantage of themselves as well as of the children."

In the early part of the year 1897, with the assistance of a grant from the Aborigines Protection Board, a mission was commenced under the auspices of the Anglican Board of Missions, by four lay members of the Anglican Church—Messrs. Hale, Ormerod, Lennox, and Gathercole. This mission was devoted to the interests of the natives of East Kimberley, and is situated at Camera Pool, on the Forrest River, which flows into Cambridge Gulf. Owing, however, to the extreme hostility of the natives, who wounded and nearly succeeded in killing the leader, the mission had to be temporarily abandoned. Another mission has since been started by Mr. Hadley, associated with Mr. Ormerod, at Sunday Island. It is now under the entire control of Mr. Hadley, who carried it on at his own expense until June, 1903, when a grant of £100 per annum was made to him in recognition of his untiring endeavours and considerable success.

An Aborigines Department having been established in April, 1898, under Statute 61 Vict., No. 5, the relief granted to indigent natives has been organised under Government supervision, and facilities are thus afforded to obtain a more accurate idea of the number of aborigines in the State. A rough estimate was made by the Aborigines Department in 1899 of the natives in contact with whites, the result being as follows:—

Employed.	Relieved.		Self-supporting.
	Regularly.	Partially.	
4,749	743	125	6,690

The total, 12,307, did not, of course, include the numerous wild tribes of East Kimberley and the North-West, nor those roaming to the East of the several Goldfields.

A settlement for natives has been formed at Welshpool, about 10 miles from Perth, where several families of them now reside.

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Small houses are erected for them, and a patch of ground cleared. The old and crippled get weekly rations, and work, such as clearing and woodcutting, is found as far as possible, for the able-bodied. Arrangements, too, are being made to open up a brick-field. A farm home has also been established near Cape Naturaliste for a few boys and girls who, for various reasons, cannot be received at the other Institutions.

Both at the Census of 1891 and that of 1901, the partially civilised natives in the settled districts were enumerated. Those "living in a purely wild state" were not included; such, no doubt, were many of those given as "self-supporting" in the estimate previously referred to made by the Aborigines Department.

The total number of aboriginals—full-blooded and half-caste—enumerated at each of the two general Censuses is as follows:—

Date of Census.	Aboriginal Natives enumerated.								
	Full-blooded.			Half-caste.			Total.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
5th April, 1891 ...	3,223	2,447	5,670	293	282	575	3,516	2,729	6,245
31st March, 1901...	2,933	2,328	5,261	492	459	951	3,425	2,787	6,212

The basis of the enumeration of aboriginals at the Census of 1891 was the same as that of the 1901 Census, similar instructions having been given on both occasions that all aboriginals or half-caste aboriginals employed by whites, or living in proximity to the settlements of whites, should be enumerated.

It will be seen that the totals for the two censuses were almost identical, being 6,245 in the case of the Census of 1891, and 6,212 for that of 1901. The distribution into the two classes of full-blooded and half-caste, however, differs somewhat, the full-blooded total being greater in 1891 than in 1901, while the half-caste total for 1901 exceeded that for 1891 by more than 65 per cent. Taking into account the fact that at the Census of 1901 the area of settled country was very much greater than at that of 1891, it would appear that, if the two enumerations are equally reliable, the full-blooded aboriginal population is gradually dying out before advancing civilisation, while the half-caste population is increasing, consequent on and in proportion to that advance.

Of the total of 5,261 full-blooded aboriginals enumerated in 1901, no fewer than 3,618, or nearly 70 per cent., were living in the Northern and North-Western Division. The numbers enumerated in the South-Western Division and the Central and Eastern Division differed but slightly from each other, being 787 in the case of the former, and 767 in that of the latter, while in the Metropolitan Division only 89 were recorded.

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Aborigines. Eastern Goldfields.

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It is interesting to note that one of the direct results of their more immediate contact with civilisation is that out of the 1,419 aboriginals enumerated in the South-Western Division, no fewer than 632, or about 45 per cent. were half-caste, the corresponding percentages in the case of the other divisions being Metropolitan 19 per cent., Central and Eastern 7 per cent., Northern and North-Western 6 per cent.

Of the full-blooded aboriginals whose ages were ascertained, 2,958 were stated to be either 21 years or above that age, in addition to which 646 of those whose ages were not definitely given were nevertheless stated to be "adults." Among the half-caste aboriginals the figures under these two respective headings were 265 and 20.

No fewer than 216 of the full-blooded aboriginals were stated to be over 60 years of age, while three were returned as being over 90. The greatest ages recorded in the case of half-castes were between 60 and 65, there being two males and one female so returned.

By far the greater portion of the aboriginals enumerated were recorded on the schedules as of "no religion," no fewer than 4,896 out of a total of 6,212, or nearly 80 per cent., being so returned. This, possibly, should not be accepted as meaning that these persons were without any sort of religious belief, but rather, probably, that the nature of such belief, if any, was unknown to, or unrecognised by, those responsible for filling in the schedules.

In addition to the foregoing, there were 479 concerning whom no entry of any sort was made in the religion column on the Census Schedule; 153 were stated to be of "No denomination," probably intended for "No religion;" of 32 it was said that they objected to state their religion, 9 were returned as "Freethinkers," whilst two were set down as "Heathen." The remainder consisted of 636 adherents of various Christian denominations, and 5 Mahomedans, all of the latter being half-castes. Of the Christian aboriginals, 388 (174 full-blooded and 214 half-caste) belonged to the Roman Catholic Church, while 229 (36 full-blooded and 193 half-caste) were members of the Church of England, the remaining 19 being adherents, of the Methodist Church, 6; the Presbyterian Church, 6; the Baptist Church, 4; the Salvation Army, 2; and an undefined Protestant denomination, 1. Of these 19, three only—viz., 2 Methodists and 1 Presbyterian—were full-blooded aboriginals.

In the matter of education, only 51 of the full-blooded aboriginals were returned as able to read and write, and 15 as able to read, but not to write. Amongst the half-castes, however, the condition of affairs was more satisfactory, as 215, or about 22½ per cent. of the total were able to read and write, while 29 could read, but were not able to write. Out of 784 half-caste aboriginals aged 5 years and upwards whose degree of education was specified, 542, or about 69 per cent., were returned as unable to read.

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The total number of full-blooded aboriginals recorded as receiving instruction at the date of the Census was 57, of whom 2 were attending State schools, 54 attending denominational schools, and 1 was returned as "being instructed at home." The number between the ages of 6 and 14 returned as receiving instruction was 28, or about 7 per cent. of the total enumerated between those ages.

Amongst the half-castes the number receiving instruction was 116, of whom 24 were attending State schools, 3 attending private schools, and 80 attending denominational schools, while 8 were returned as "being instructed at home," and one was returned as "scholar," the nature of the place of instruction not being specified. Of 294 half-castes enumerated between the ages of 6 and 14, 88, or about 30 per cent., were recorded as receiving instruction

Of the total number of full-blooded aboriginals enumerated—viz., 5,261—those returned as bread-winners amounted to 3,766, or about 72 per cent. The occupations in which most of these aboriginal bread-winners were engaged were those connected with the pastoral industry, no fewer than 2,573, or about 68 per cent., of the total number enumerated being returned as employed in pastoral pursuits. Of this number, 1,610 were males and 963 females. Of the remainder, 668 were in domestic service, 161 were engaged in agricultural pursuits, and 76 in connection with fisheries, mostly on board the pearling fleet, while 63 who were classified in the detailed tables under "Government, Defence, Law, etc.," were mainly employed as police assistants, and 61 tabulated under the head of "undefined industrial pursuits" consisted chiefly of those returned on the schedules simply as "labourer," the balance of 164 being distributed in small numbers over various occupations other than those mentioned.

In the case of half-castes, 412, or about 43 per cent., of the total were returned as bread-winners, the principal occupations being those connected with agricultural pursuits (125), with domestic service (120), and with pastoral pursuits (118). The remaining 49 were distributed over various other occupations.

The number of aboriginals belonging, at the date of the Census, to the criminal class under legal detention was 126, of whom 117 were full-blooded and 9 half-caste.

The number dependent either on natural guardians or on voluntary or State contributions was 702, of whom 186 were full-blooded and 516 half-caste; while in the case of 1,206 (1,192 of full-blood and 14 half-caste) no information of any kind was furnished as to the means by which their living was obtained.

With regard to the distinctive characteristics of the aborigines, one well-known ethnographer speaks as follows:—"Their physical features, no less than their mental condition, forbid us to associate these people with the inhabitants of any other surrounding country. They are entirely separated from the Papuans of New Guinea by their silky hair, ample beard, and contracted features—no less than by their ignorance of the bow-and-arrow, the chief

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Native Stockwoman, Laverton.

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weapon of most of the Papuan tribes. Still further removed are they from the Malays and Polynesians; so we are driven to suppose that they are the remnant of an ancient and peculiar race . . . . We must, therefore, believe that the Australians represent a primitive family which has been superseded in other countries by somewhat higher tribes. It is now generally admitted that the only other people with whom the Australian aborigines can be associated are some of the hill-tribes of Central India, with whom, not only in their physical features, but to some extent in their languages, they correspond. The Papuans may have formed a second great wave of immigration."

Their perceptive faculties are very acute, and make them invaluable as trackers; and as messengers, pearl-divers, shepherds, horse-breakers, stock-drivers, hunters, or at any employment requiring only light manual labour, they have proved satisfactory and trustworthy. Nor, when instancing the use of aboriginals to the white man, must Flinders' "Jack"; Wickham's "Miago"; Dr. Wilson's "Mokare"; Grey's "Kaiber"; "Warrup" and "Wyip," who helped J. S. Roe in his search for Grey's lost party; Eyre's "Wylie"; Forrest's "Jimmy Mungaro," "Billy Noongale," and the two Tommies "Wyndich" and "Pierre"; Warburton's "Charley," and Giles' "Jimmy Nanthona" and "Tommy Oldham," and other natives who accompanied the early colonial explorers in some of their most arduous journeys, and proved almost indispensable, be forgotten. Those people who, like Dampier, declare the West Australian natives to be the "miserablest people on the earth," forget such proofs of manufacturing skill as are displayed in the spinning of the waist-girdle from the fur of the opossum or the human hair; but, on the other hand, it must be acknowledged that their primitive methods of calculation, such as that by tally-sticks or moons in the case of time, show them to be low in the scale of civilisation.

The tribes, with few exceptions, are essentially nomads, having neither local habitations nor places of refuge, but roving only within the boundaries of that particular district, of the many into which the State is divided, occupied by them according to usage.

Food is obtained by hunting, fishing, or digging, and the supply is, as a rule, by no means scanty.

Their dwellings are of the most primitive description, taking, generally, the form of a breakwind composed of a few logs or thick branches covered with boughs or clay. In the North-West the natives sleep in the open, and their fire forms the only camp they make. Little clothing is required in the case of the aboriginals, and beside the girdle of yarn (noolban), the only garment used is the booka, a cloak made from kangaroo skins.

The principal weapons used by them are the boomerang (kyley), hatchet (kodjia), knife (dabba), spear (gidjey), throwing-stick or board (mero or wanner), and club (dowak).

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No people are more slaves to ceremony than the natives of Western Australia; in fact, for almost every daily occurrence of life a corresponding form exists.

Of their ceremonies the corroboree is perhaps the most distinctive, although resembling in many points similar customs of the Polynesians. It often takes the form of a war-dance, but seems to have several modifications to suit the celebration of different events.

The tribal laws relating to marriage, inheritance, and other matters pertaining to social life among the aborigines, are most stringent, and in many respects singularly peculiar.

Referring to the cave paintings found in many parts of the State, Mr. Chief Inspecting Surveyor F. S. Brockman, in his report on the exploration of North-West Kimberley, made by him in 1901, says :—

"A remarkable custom of the aborigines of the Western part of the district South from Admiralty Gulf is that of painting representations of the human figure, beasts, reptiles, etc., on almost every available smooth vertical face to be found in the sandstone ranges. Over the area in which these paintings occur, I frequently found the pigments used at the native camps, and invariably have found them in every bundle of household goods abandoned by the natives on our approach. These pigments consist of several colours of oxide of iron, pipeclay, and ground charcoal."

It is not improbable that many of these silent witnesses point to the presence, at some early date, in this State, especially its Northern portion, of a race superior to that found at the present time. The existence of individuals of a lighter complexion and with more regular features than usual, noticed by several travellers —notably Grey, Giles, and Stokes—is, perhaps, confirmatory of such an idea, and some writers have laid great stress on this circumstance.

4.—FAUNA.*

(From information supplied by B. H. Woodward, F.G.S., C.M.Z.S., Director of the Western Australian Museum and Art Gallery; A. W. Milligan, Honorary Consulting Ornithologist to the Museum; H. M. Giles; and C. F. Gale, Chief Inspector of Fisheries.)

Animals (*Mammalia*).

As regards animal life the Australian region is perhaps the most distinctively marked of any on the earth; indeed, some authorities are of opinion that it constitutes a main zoo-geographical region as opposed to the rest of the world, so remarkable are the peculiarities of the mammals to be found in it; for, exclusive of Man and animals introduced by him, the marine mammals, and a

* For fuller details of the Fauna of Western Australia *see* Vol. I. of the Year Book for 1900-01, or also the "Notes on the Natural History, etc., of Western Australia," from which these extracts have been taken.

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Native portrait painting on rock at Bachsten Creek, Kimberley.

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few bats and rodents, they are all implacental mammals—marsupials and monotremes, the lowest in organisation of the mammalia, yet offering a wonderful variety of forms and habits.

The order Monotremata contains the lowest of the mammals, which in their structure show some points connecting them with the reptiles. It comprises but two genera, viz., *Ornithorhynchus*, the duck-billed platypus, only found in the Eastern States, and the *Echidna*, the so-called native porcupine or hedgehog, an animal covered with spines, which hide the hair. Of the four species, one, *E. aculeata*, occurs throughout Australia. It is not uncommon in the Eastern districts and North-West of this State.

The marsupialia are divided into two sub-orders:—(I.) The Polyprotodontia (*having many front teeth*), includes the bandicoots, native cats, Tasmanian wolf, etc.; the phascologale, or pouched mice, banded ant-eater, and the American or true opossums, which are all carnivorous or insectivorous, and have as a rule strong canines. (II.) The Diprotodontia (*having two front teeth*), are so called because in most of them the two incisors are strongly developed, while the canines are either rudimentary or wanting altogether. This sub-order comprises the kangaroos, and the Australian opossums or phalangers, and wombats, which are all vegetable feeders.

Some of the more important families and species found in Western Australia may be conveniently mentioned here: The Dasyuridæ, or native cats, a group of carnivorous and insectivorous marsupials; very remarkable forms occur in the genus *Sminthopsis*, insectivorous animals, in outward appearance barely distinguishable from common mice; two species of these have up to the present been recorded as inhabiting Western Australia, but owing to their diminutive size and nocturnal habits, others have in all probability escaped notice; the Peramelidæ, or bandicoots, soft long-furred insect-eaters, about the size of a rabbit; and the singular pig-footed *Chœropus*, locally known as the "antelope," found in the North and Central Districts of the State; the Phalangeridæ, or Phalangers, called, locally, opossums; and the Macropodidæ, or kangaroos, which vary in size from the great kangaroo, *Macropus giganteus*, attaining a length of over five feet from the tip of the nose to the root of the tail, down to the small kangaroo rats.

Almost all the species of the Australian "opossum" family are remarkable for the extreme softness and richness of their fur; the skins making exceedingly handsome and durable rugs. For symmetry of form, grace, and agility of movement, the palm must undoubtedly be given to the "flying opossums," locally called "flying squirrels."

The Kangaroo rats are small, the length of head and body not exceeding two feet; the claws of the fore feet are large, the ears small and rounded; canines present.

The *Macropodinæ*, or Kangaroos proper, are all very similar in form and general appearance, and have a characteristic hind foot.

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In it the fourth toe is very large and strong, and has a powerful claw. On the outer side lies the fifth toe, much smaller, while on the inner side are the second and third toes, excessively slender, and *joined together;* the great toe is wanting. In the Kangaroos the hind feet are more than ten inches in length; in the large Wallabies under ten but more than six inches, and in the small Wallabies under six inches. The kangaroos—before the advent of the pastoralist—formed a very important source of food supply to the aborigines. Indeed even the early settlers of this State, from 1829 to 1835, depended largely, in fact at times wholly, upon kangaroo meat, and in those early days it sold in the markets of Perth and Fremantle as high as 1s. 6d. per pound. Later on the kangaroos were destroyed in great numbers, not only because of the loss they caused in consuming the herbage required for the flocks and herds, but also because the skins had then attained a special commercial value. In the year 1851 no less than 29,500 skins were shipped. From then for some years no separate account was kept by the Customs authorities of the different kinds of skins exported, but in 1892 we find that 402 bales of kangaroo skins, valued at £27,600 sterling, were sent out of the State.

Mr. B. H. Woodward, C.M.Z.S., the director of the Western Australian Museum, recently received from the collector for the Museum, Mr. John T. Tunney, some skins and skulls of a variety of black kangaroo, which appeared to be a new species, as it differed in many structural points as well as in colour, from anything previously seen in Australia. The skins were sent to England for scientific investigation, and have been described in *Novitates Zoologicae*, by the Hon. Walter Rothschild, who finds that it is not only a new species, but also a new genus. In many respects it occupies an intermediate place between the rock wallabies (*Dorcopsis*) of New Guinea and the tree kangaroos (*Dendrolagus*) of New Guinea and Queensland, so he has named it *Dendrodorcopsis woodwardi*. Mr. Oldfield Thomas, of the British Museum, in his report on the skull of this curious new kangaroo, finds that its essential generic characters do not differ materially from those of the true kangaroo (*Macropus*). Especially noticeable, however, is the absence of the canine teeth, which are found in both the other genera named above. The colour above and below is a sooty brown black, while the fore limbs and the lower parts of the hind limbs and the tail are deep black. The habitat, as far as is at present known, is limited to the granite ranges at the head of the South Alligator River, in the Northern Territory of South Australia. Specimens of this interesting genus are on view in the Western Australian Museum. While it retains the head of a true kangaroo, its limbs are modified owing to its rock-haunting and arboreal habits.

Insectivorous Bats are plentiful throughout the State, but there is only one indigenous Fruit Bat (*Pteropus funereus*) (Temm), commonly called the Flying Fox, which takes the name from its long fox-like face. This bat is characterised by its large

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Native Rock-paintings at Bachsten Creek, Kimberley

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size, being about one foot in length, and its wings, when extended, having a spread of about three feet; further by having 34 teeth; by the total absence of a tail, and by the thick coat of woolly fur covering the neck. It is nocturnal in its habits, and is found in parts of New South Wales, Queensland, the Northern Territory of South Australia, and in the Kimberley District of Western Australia. Fortunately for the fruit-growers, it has never been found South of lat. 20°, and it is safe to say that, separated as it is by nearly 500 miles of an almost treeless stretch of country, it is hardly likely to make its way into the fruit-growing districts of the Southern portion of the State.

THE DINGO (*Canis dingo*).—It is more than probable that this animal was introduced by man, and that it originated from some of the dogs of Asia. The dingo is smaller in size than the wolf, has long legs, a long and somewhat bushy tail, a broad and short muzzle, and well-developed ears. In colour it varies from creamy white to nearly black; it is usually a uniformly light reddish, or yellowish brown, lighter coloured underneath and on the inner side of the legs; the end of the tail is invariably white, as are frequently the feet. The dingo is found all over Australia, and although the large rewards offered for its destruction have led to a great diminution of its numbers, it still remains a terrible pest to the pastoralist. It hunts either in packs or singly, and delights in stealing upon a flock of sheep, and kills and mangles a far greater number than it eats. The dingo never barks like a domestic dog, but has a dismal monotonous howl. In its habits and cunning disposition it should rather be compared with the fox than with the wolf; it is very shy, and is rarely seen in the daytime. The aboriginal natives of Australia find the dingoes as puppies, and rear them with great care; and though they are well treated they often run away, especially in the breeding season. When sufficiently domesticated, they are very useful to the natives for hunting purposes, having a keen scent and a rapid stride.

THE DOMESTIC CAT (*Felis maniculata var. domestica*) has run wild, and is becoming as great a plague as the dingo, and, should it continue to increase in size and numbers at the rate it is now doing, will ere long be a still greater enemy to the agriculturist, for although it at present feeds largely on the lizards and small birds, if these be reduced in numbers the insect pests will consequently increase in a greater ratio. For instance, the Silver Eyes (*Zosterops gouldi*) may eat a few grapes, etc., but how much more fruit would have been utterly destroyed by the thousands of insects they have consumed earlier in the season.

Taking into account man and the animals he has introduced, and the marine species, nine of the twelve orders of the class mammalia are found in the wild state in Western Australia.

BIRDS (*Aves*).

Of the 780 described species of Australian birds, at least 500 occur in Western Australia. The expression "at least" is

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used advisedly, as it is safe to speculate that, since the extreme Northern and South-Western portions of the State have not, in an ornithological sense, as yet been thoroughly explored, science, when they are, will not only be enriched by the knowledge of the presence of species already occurring in other States of the Commonwealth, but also, probably, by the discovery of species absolutely new. In the Northerly directions indicated we may expect to hear of the discovery of members new, at least to Western Australia, of the beautiful Fruit-eating Pigeons, of the equally beautiful Honey-eaters, and possibly of the brilliant-plumaged Pittas or Ant-thrushes.

In speaking of Western Australia, it is generally conceded that it is singularly rich in the wealth and beauty of its floral forms; but, on the other hand, it is the subject of common remark that the State exhibits a great paucity in the numbers of the individuals composing its bird life. The latter conception, however, is not borne out by facts. No individual State of the Commonwealth is as rich as Western Australia in the number and variety of its individual ornithological forms.

As with the flora, many of the forms are anomalous, singular, and exclusive in habitat. Such Eastern endemic forms as the Lyre-birds (Menura) are absent; but, on the other hand, the State shares with the other divisions of the Continent such remarkable groups as the Mound-builders, or Mallee hens, and the architectural Bower-birds.

Many of the recorded species of Western Australia are visitants, in the sense that they visit our shores and lands in order to escape the rigorous winters of their own native habitat. The immigration of others, again, is periodical and due, among other reasons, to the need of obtaining seasonable supplies of food. Others, again, are, so to speak, inland or restricted immigrants, whose domiciles are Australian, but who, according to the season, make periodical visits to breed. Others are nomadic, or migratory in a very restricted sense, and move from locality to locality as the water or food supplies of a particular kind become exhausted. Others again are local and stationary, obviously, because the localities they inhabit furnish a perennial supply of food, and satisfy all their other requirements.

On the subject of vernacular classification, the attribution of erroneous vernacular names to Australian birds has proved one of the greatest impediments to the popularisation in Australia of the study of ornithology. The many grievous errors which exist were made and perpetuated by, and are readily traceable to, the early colonists, who, obviously, not possessed of even an elementary knowledge of ornithology, gave the common names of British groups to Australian groups upon the most slender external likenesses. One or two familiar examples will suffice to show the mischievous effects of such misnomers. Take, for example, the bird in Australia commonly known as a "Magpie." The British magpie, after which

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Native painting on basalt rock. Drysdale River. Kimberley.

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the Australian one was called, is a member of the Crow Family, and occupies an intermediate position between the Nutcrackers and Jays. Not only is the Australian bird not of the same genus, but it belongs to quite another family, that of the "Butcher-birds." The Australian bird is really a butcher bird in robust form. Take another example, namely, the Robins. The British Robin Redbreast is closely allied to the Nightingales, and is a member of the "Warblers" or Sylviidæ. One of the so-called Australian robins belongs to the Flycatchers, another to the Babbling Thrushes or Timeline Family, and still another to the Thickheads. Further examples might be cited in the Tits and Wrens.

Only passing mention can here be made of some of the more important species of Western Australian birds.

Of the "*Accipitres*" or birds of prey, the Long-legged Hawks, which embrace the Harriers, the Goshawks, and the Sparrowhawks, are present. The Eagle family is only sparsely represented. There are four species of true Falcons, and one true Kestrel. In addition, Western Australia has a genus (*Hieracidea*) of the Falcon family, which is almost strictly Australian, and which occurs between the Gyrfalcons and the true Kestrels.

Of Owls (*Bubonidæ*) there are several varieties, including the More-pork (*Ninox boobook*).

Passeriformes, perching birds.—The Raven, the Carrion Crow, and the Leaden Crow-shrike, or Squeaker, are represented.

Western Australia has not any representative of the Starling family. Neither are any of the forms of European Finches found. The place of the latter, however, is taken by the Weaver Finches (*Ploceidæ*), a family comprising some of the most charming and brilliantly plumaged forms of Australian bird life. They vie with the Parrots, Honeyeaters, and Pigeons in variety and brilliancy of colour. This characteristic, combined with their miniature forms and their readiness to adapt themselves to captive life, make them popular favourites. Their song is plaintively sweet, but weak. It is almost ungenerous to single out a species for distinction; but special reference must be made to the Gouldian Finch. The whole of the genus, excepting one species, are inhabitants of the Northern and interior parts of the State. The one exception, the Red-eared Finch, is found in the South-West. His favourite haunts are the sage-bush scrubs on the coastal brooks and springs. His nest is composed of long grass, and is bottle-shaped in form.

The Crow-shrikes, or "Butcher-birds," are well known, and include the familiar so-called "Magpies" (*Gymnorhina*) and "Whistling Jackasses." There are five Western Australian species, all of them being true types.

One of the most interesting and beautiful of the genera of Australian birds is that of the so-called "Wrens," *Malurus*. They are purely Australian, and, owing to their insectivorous habits, are

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not only extremely useful, but their beauty renders them ornamental to a degree. One of the most common forms in and around Perth and the Darling Ranges is the "Banded Wren."

Of those families which are strictly Australian or Western Australian, or allied to families other than those of Britain, that of the Wood Shrikes claims special attention. Heading the list is one of the most singular forms in Australian ornithology, namely, the "Magpie Lark" (*Grallina picata*), or, as it is often called in some localities, "The Pugwall." In the vicinity of the Swan River it is not what may be called a common bird, although in many of the other States, and particularly in the settled districts, it is as frequently seen as the so-called "Magpie." It is an attractive bird, which fact, combined with its decided sociability and fearlessness, has established it as a general favourite among the settlers.

The family of Honeyeaters, in its sub-family *Zosteropinæ*, includes two genera, *Zosterops* and *Melithreptus*. The genus *Zosterops* includes that very numerous class of birds known as the "Silver-eyes," or by the more local name of "greenies." The Perth "greenie" (*Zosterops gouldi*) is, unfortunately perhaps, a too familiar form in orchards, and bears an unenviable reputation as a destroyer of ripening fruit. The evidence as to its ravages in the direction indicated is overwhelming; but orchardists blindly, it is contended, only keep a debit account. They do not appreciate, or possibly are ignorant of, the incalculable good these birds do in the destruction of the various insect pests which abound in Western Australia.

Cuckoos (*Cuculidæ*).—One true Cuckoo, the Pallid Cuckoo (*Cuculus pallidus*), only is found, but other genera are represented.

The Wattle-birds (*Acanthochæra*) number three species. They are exclusively Australian. The little Wattle-bird (*Acanthochæra lunulata*) may be found anywhere in the Swan district, where, in the banksia scrubs and forests, his frequent deep guttural notes always betray him.

Of the Fish-eaters (*Alcedininæ*), Western Australia possesses one, the purple Kingfisher.

Of the Reptile-eaters (*Daceloninæ*), two genera are represented, each having three species. In one of these is included the locally so-called "Laughing Jackass."

The State is fairly well represented in all sections of the order of Parrots (*Psittacidæ*). The most common Western Australian form of the Lory (*Loriidæ*) is the Purple-crowned Lorikeet. A much larger form is the Red-collared Lorikeet, which is an inhabitant of the North. Among the Cockatoos (*Cacatuidæ*), one of the best known about Perth is the "Black Cockatoo" of the settlers, a species which is exclusively Western Australian, and generally distributed throughout the Southern latitudes. It is called the White-tailed, the inner covers to the tail being white, to distinguish it from the Red-tailed Cockatoo, another black member of the same

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species, in which they are red. The Great-billed Cockatoo, and several varieties of white ones, Leadbeaters, and the Galah, must be included in the list, to which must be added the Cockatoo Parrakeet. Of the Parrakeets, which are well represented, the species best known in the older settled districts is the "Western Australian Rosella," or "Yellow-cheeked Parrakeet." The Parrakeet most abundant and ubiquitous in the same parts is the "Twenty-eight," or "Yellow-collared Parrakeet." Specimens of the Rock, Ground, Shell, and Night Parrakeets are also present.

Of the Pigeons (*Columbæ*), the Fruit-eating Pigeons are represented by the Rose-crowned Fruit Pigeon, and the White Nutmeg Pigeon, which both have their habitat in the extreme North of the State.

Of the "Ground Pigeons" (*Geopelia*), we have three species, *G. humeralis*, *tranquilla*, and *cuneata*, known in the vernacular as the "Barred-shouldered," the "Graceful," and the "Ground Doves." These, however, must not be confounded with the "Turtle Doves" of the Old World (*Turtur*). The members of this sub-family are remarkable for their graceful, elegant appearance, and their fearlessness of man. All three species are found either in the Northern or interior parts of Western Australia, but mostly in the Northern latitudes. Owing to the exertions of the Acclimatisation Committee, one species, the Barred-shouldered Dove, is a familiar form about South Perth. To the Ground Feeders, also, belong the well-known "Bronzewing Pigeons" (*Phaps chalcoptera*), who receive their popular name from the clearly-defined patch of bronze which adorns the wing coverts. Almost every Australian knows either one or other form of the Bronzewing family, which includes the Brush, Flock, Partridge, Plumed, and Crested Bronzewings, all of which are found in Western Australia. A singular form of Rock Pigeon is also found in the far North.

In the Order *Gallinæ* there are only two representative game birds—one a brown quail (*Synacus Australis*), and the other the Gnou or Mallee Fowl (*Lipoa ocellata*).

Of the *Hemipodii*, the Three-toed Bustard Quail, there are four species, the Painted Quail (*turnix varia*) being the most common.

The Order *Fulicariæ*, Rail and Water Hens, is represented by two Little Crakes, one species of Moorhen (*Gallinula tenebrosa*), two purple Gallinulas (*G. Bellus* and *G. Melanonotus*), two species of Rails, and two of Coots.

Of *Alectorides*, crane-like birds, the family of Cranes (*Gruidæ*) is represented only by the "Native Companion," belonging to the genus *Antigone*. The Bustards (*Otididæ*) have also only one member, the so-called "Wild Turkey."

The Plovers (*Limicolæ*) are fairly well represented in their various families, amongst others, of Turnstones, Oyster-catchers Dotterels, Stilts, Avocets, Sandpipers, etc.

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The Stone Plover (*Burhinus grallarius*), locally known as the Curlew, from its weird, wailing night cry, is fairly common; whilst the presence of the Banded Stilt (*Cladorhynchus pectoralis*), usually called the "Rottnest Snipe," is much appreciated by local sportsmen.

The Order *Gaviæ*, sea birds, as might be expected from the extent of seaboard possessed by this State, is especially numerously represented.

The *Tubinares* order comprises the Storm and other Petrels, which are well represented, and also the Albatrosses, six species of which are known on this coast.

Platalexæ, Ibises and Spoonbills.—This order is represented by three Ibises—the White (*Ibis molucca*), the Glossy (*Plegadis falcinellus*), and the Straw-necked (*Carphibis spinicollis*)—and two Spoonbills, the Black and Yellow-billed.

Herons and Storks (*Herodiones*).—There is one representative (*Herodias timoriensis*) of the Great White Heron. The Lankeen Night Heron (*Nycticorax coledonicus*) breeds on Bird Island, near Fremantle. The Egrets and Bitterns are also represented.

The Jabiru (*Xenorhynchus asiaticus*) is the only member of the Stork family present.

Steganopodes, pelican-like birds.—Of Pelicans one species only is found (*P. conspicillatus*); it is, however, very common. Of the Cormorants (*Phalacrocorax*), which are very numerous, five species are known. The black (*P. carbo*) and the Shag (*P. melanolencus*) are the commonest.

The *Pygopodes*, or Diving Birds, are represented by the locally-named Grebes and Dabchicks.

Impennes (Penguins) as represented by the Little Penguin (*Eudyptulus minor*), are abundant on the coast.

The Order of *Chenomorphæ*, which comprises the geese, swans, and ducks, is well represented, though it may perhaps be disappointing to realise that the well-known Black Swan (*Chenopis atrata*) is not a true swan, but only an allied form.

The Pied Goose, Green Goose teal, Cape Barren Goose, and Maned Goose, the latter known locally as the Wood Duck, represent the goose families.

One true duck, the Black Duck (*Anas superciliosa*), is represented. Of other families, the Mountain Duck, Blue-wing, Musk Ducks, and two species of teal are found.

The birds so far mentioned all belong to the sub-class *Carinatæ*, those having a "keeled" breast-bone. There now remains the sub-class *Ratitæ*, in which there is no keel to the breast-bone, and but a rudimentary "wishing-bone" or "merry thought"; they are incapable of flight, but can run swiftly. This sub-class is represented in Australia by the Cassowary and Emu, of which only the latter is to be found in this State. Whether there be two living species of Emu (*Dromæus novæ-hollandiæ*), and a spotted Emu

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(*D. irroratus*), confined to Western Australia, is still a disputed question, for many authorities hold that the "spottiness" is merely an accidental variation, and of no specific value, and that some young "spotted" birds have grown up into ordinary emus.

Reptiles (*Reptilia*).

Of the 1,600 species of snakes now known, about 30 have been noticed in this State, the most common being one of the Pythons (*Morelia variegata*), the Carpet Snake, which, unfortunately, is being ruthlessly destroyed, although it is not poisonous; it is a useful friend to the agriculturist, as it feeds on the small mammals and birds which injure their crops. There are very few species of poisonous snakes in the State, and the statistics of the Registrar General show that only one death from snake-bite has been noted since medical returns have been kept.

More than 100 of the 2,000 known species of lizards occur. Among these special mention must be made of *Moloch horridus*, the York or Mountain Devil, a small lizard never exceeding eight inches in length, which lives on flies and other insects, is covered with tubercles and spines, and, notwithstanding its name and appearance, is perfectly harmless. Another well-known lizard is the *iguana*.

Of recent Chelonians, the Hawksbill Turtle (*Chelone imbricata*), from the Lacepede Islands, the Leathery Turtle (*Dermochelys coriacea*), from the North-West, and the Long-necked Tortoise (*Chelodina*), are the best known.

Legislation in connection with Native and Imported Birds and Animals.

(*55 Vict., No. 36, and 64 Vict., No. 7.*)

CLOSE SEASONS.

Birds.

Black Swan (proclaimed 4th April, 1894), Emu (27th September, 1894), Straw-necked Ibis (4th July, 1893), Bittern, Magpie, Laughing Jackass, Wattlebird, Wagtail, and Robin Redbreast (7th June, 1892), *are strictly preserved throughout the State*, and their destruction anywhere, at any time, and in any way is wholly forbidden.

Wild ducks of all species are protected throughout the whole State, with the exception of the Kimberley Division and the East Murchison Goldfield, from 1st July to 23rd December, both days inclusive (proclamations 6th November, 1901, and 5th November, 1902).

The close season for Wild Geese, Bustard or Wild Turkey, Swamp Hen, Bronzewinged and other Pigeons, Gnou, Quail, Rottnest and other Snipe (proclaimed 7th June, 1892), throughout the South-Western Division of the State, and including a strip of land five miles wide from the mouth of the Fitzgerald River, along

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the South coast to within 20 miles of Eucla, where there is a special reserve, measuring 20 miles along the coast by 10 in depth, is from 1st July to 30th November, both inclusive.

For Booby, Frigate Bird, Noddy, Pelican, Curlew, Sea Pie, Sea Snipe, Mutton Bird, Red Bill, Cormorant or Shag (7th June, 1892), for all that part of the State North of the Moore River, from 1st June to 30th September, both inclusive.

For Finches and Doves (13th August, 1902), within the Kimberley Division, from 1st August to 30th November, both inclusive.

Animals.

There is no proclaimed close season for any native animals.

GAME RESERVES.

Birds.

(Proclamation 3rd August, 1898.)

Portions of the Swan River, as follows:—

From the Midland Railway Bridge (Upper Swan), over said river, downwards to its mouth and to the extreme Western end of the breakwater at Fremantle; to include Perth and Melville Waters and Freshwater Bay.

Portions of the Helena River, as follows:—

From the Canning Jarrah Timber Company's Railway Bridge, over Helena River, downwards to its junction with the Swan River.

Portions of the Canning River, as follows:—

From the South-Western Railway Bridge, over the Canning River, downwards to its junction with the Swan River.

(Other Proclamations as specified.)

The Vasse River and Estuary within the boundaries of the municipality; proclaimed 6th February, 1901.

The Leschenault Estuary, from its head to its entrance into the sea at Bunbury; proclaimed 31st July, 1895.

Monger's Lake and Herdsman's Lake, near Leederville; proclaimed respectively 3rd January, 1901, and 15th February, 1902.

The Abrolhos Islands, proclaimed 26th May, 1898; and Pelican Island, in Shark Bay, proclaimed 15th March, 1900.

Reserve No. 7294, being the Helena River Reservoir (Mundaring Weir), as a Reserve for Wild Duck of all species; proclaimed 23rd January, 1903.

Animals.

A reserve for Kangaroos was proclaimed on 8th March, 1901, which includes all that portion of the State "bounded on the South and West by the sea coast; on the North and Eastward by an East

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line from the sea coast, through Mount Lesueur to a point North of Kellerberrin; thence South till it intersects a South-Easterly line extending from Mount Stirling to the mouth of Fitzgerald River, and along said line South-Easterly to the mouth of Fitzgerald River aforesaid, including the islands adjacent to the sea coast aforesaid."

In this reserve Kangaroos are strictly preserved, and may be killed for food only, but not for sale or barter.

The penalty for destroying, disturbing, or attempting to destroy or disturb, any native game during the close season for such game, or at any time during the year, any bird or animal whatever on any proclaimed reserve, or anywhere in the State, at any time, any bird or animal declared to be strictly preserved, is that any person so offending shall, on conviction, pay a sum not exceeding £5, in addition to the sum of 10s. for each bird or animal so destroyed or taken, and any gun or other instrument used may be ordered to be forfeited. Under 68 Vict., No. 7, after the expiration of ten days from the commencement of the period proclaimed as a close season for any bird or animal of a kind mentioned in the first schedule of "The Game Act, 1892," and before the termination of such period, any person, unless licensed under section seven of the said Act, who knowingly sells, buys, or has in his possession or control the dead body of any such bird or animal, whether native or imported, is liable to a fine of £1, unless he can prove that such dead bird or animal was imported from beyond the State.

Under 68 Vict., No. 7, no swivel or punt gun is to be used against native birds under penalty not to exceed £5 and forfeiture of gun.

Under 49 Vict., No. 18, no person can use or carry a gun within the boundaries of a municipality or within a distance of five miles beyond such boundaries, except in a dwelling house or the grounds in which it stands, without having obtained a license, on payment of the fee of 5s., and no person under the age of 16 can obtain a license.

It should be carefully noted that the term "gun" includes a firearm of any description, and an air-gun or any other kind of gun from which any shot, bullet, or other missile can be discharged.

The penalty for carrying a gun without a license is a fine not to exceed £2.

Eggs of imported and native birds for which a close season has been proclaimed may not either be wilfully destroyed or stolen, under a penalty of the payment of a sum not to exceed 10s. for each egg destroyed or found in any person's house or possession.

The Government has purchased a number of Black Swans in different districts of the State, and they are to be seen on the Swan River, opposite to Perth, between the Causeway and Melville Water, in company with numerous wild ones attracted by them.

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For the better protection of fish, a reward of 6d. (sixpence) per head is offered for the destruction of Cormorants or Shags in any portion of the State South of the Moore River except in the Leschenault Estuary, and, unless by license, in that portion of the Swan River which lies between its entrance into the sea at Fremantle and the Perth-Bunbury Railway and Lower Canning Bridges.

Destructive Birds.

Under the 27th Victoriæ, No. 22, the importation of Sparrows into the State is forbidden; and by proclamation of 22nd January, 1896, the introduction of Starlings, Blackbirds, and Thrushes is absolutely prohibited.

Destructive Animals.

The importation or keeping of Rabbits is unlawful under the "Destruction of Rabbits Act, 1883" (47 Vict., 16).

By proclamation, 26th November, 1895, the introduction of Flying Squirrels, otherwise known as Flying Foxes, into the State is prohibited.

By an Order in Council, dated 17th July, 1901, framed under the provisions of "The Stock Diseases Act, 1895" (59 Vict., 34), the introduction of Foxes and Hares is forbidden.

A reward of 10s. or 5s., according to the district, is offered by the Government for the destruction of the Dingo or Native Dog, the proof of which consists in the production of the tail before a Justice of the Peace.

Insect Life.

The entomological fauna of this vast State is, unfortunately, almost unknown to science, even within our own immediate boundaries, for if we except the notes made at long intervals by a few visiting naturalists who have collected over very limited areas of the coastal districts in the vicinity of Perth, Albany, and Geraldton, we are practically in the dark as to the extent of the distribution of insect life. Mr. A. M. Lea, late Government Entomologist, in a former article dealing with this subject, estimated that probably 30,000 species of insects will be found indigenous to Western Australia. This is in all likelihood a safe estimate; and it seems also likely that, as these species get to be known and described, the greater part of them will be found to be new to science. Some only of the more striking specimens of Western Australian insect life are here singled out for notice.

The *Mantidæ* contain a number of fine varieties, *M. fusci-elytra* being one of the largest species; these are generally known as "*Praying*" *Insects*, owing to their habit of resting with the fore-legs folded, as if in an attitude of devotion. But woe betide the unfortunate insect, even if their own kindred, that ventures near them, as it is instantly seized and devoured. The *Phasmidæ*, or *Stick-and-Leaf Insects*, contain some of the largest insects known,

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Sections of Government Rabbit-proof Fence, 256 miles North of Burracoppin.

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and there are some grand varieties here, fully equal to those in any part of Australia. The violet-shouldered *Phasma Podacanthus violascens* attains a length of six inches, with an expanse of wing much greater. The crimson-winged *P. typhon* is even larger still; but the giants are those contained in the *Diura* genus. *Crickets* are fairly numerous, and contain some peculiar forms; one of the largest, *Deinacrida*, is most formidable looking, having great spiny legs, and enormously long antennæ (nearly nine inches), and with its immense jaws it can inflict a very severe bite. The true *Grasshoppers* contain some fine species, but are far below the *Locusts* in point of variety. The latter tribe contains many species peculiar to Western Australia.

The *Silver-fish* (*Lepisma*) are extremely common locally, the order being also abundantly represented by the *Termites*, or, as they are called, *White Ants*, whose depredations are unfortunately known to all; they are one of the most destructive pests to be found, as there is scarcely a timber which they will not attack. The jarrah, said to be proof against them, is frequently seen completely riddled by them, though possibly the result of some fault in the timber. One thing, however, which, after careful observation, must be admitted, is that where jarrah is used in conjunction with other timber, it is the last to be attacked.

Among the *Ants* may be specially noted the large *Soldier Ants*, which are often over an inch in length, and can inflict a most painful sting. Their sting, however, is less severe than that of the species known as the *Jumper*, whose venom is far more acrid and painful, although the "Jumpers" are not more than half the size of the "Soldiers," some species known locally being less than an eighth of an inch long.

There are, it is said, in the British Museum over 50 species of *Bees* from Western Australia, comprising quite a dozen genera. One of the largest is the *Carpenter Bee*.

The Order of *Lepidoptera* in this State, as far as is known at present, is not rich in "Butterflies."

The *Scale Insects*, or "*Coccidæ*," are unfortunately too numerous, even without the many introductions which have taken place, such as the *San José-*, *Oleander-*, *Apple-*, and *Cottony Cushion-Scale*, and several others.

The almost numberless Order of *Diptera*, or *Flies*, is too well known to require any description, and this State certainly seems to have more than her fair share. *Sand Flies* are all too numerous. *Mosquitoes* are at times almost unbearable, even to the seasoned dweller, but far worse to the new arrivals. They are of several kinds, sizes, and colour, and some are especially venomous.

Though not true insects, *Scorpions* may here be mentioned as numerous; some of the species attain a fair size, and all are to be avoided, as they can inflict a severe and painful sting.

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Spiders also are as well represented here as in any part of the world; and amongst them are found some of the most fantastic shapes imaginable. Although there are none so large as the *Giant bird-catching spider* of South America, there are yet among the *Trap-door-* and *Wolf-spiders* some very large species, capable of inflicting exceedingly painful bites.

Fish and Fisheries of Western Australia.

Western Australia, with its extensive sea-coast, produces, as might be anticipated, a most abundant and varied fish fauna. Extending from the parallel of latitude 14° in its Northern, to latitude 35° in its Southern boundary, this coast-line is associated with the essentially distinct fishing products and industries peculiar to both tropical and temperate regions. The Southern limits yield the same oyster (*Ostrea Edulis*) that is common to the States of Victoria, Tasmania, and South Australia; crayfish most nearly resembling the New South Wales variety, and edible fishes which, while corresponding generally with those of the four above-named States, include others that are essentially West Australian. Briefly reviewing the varied commercial fish fauna, we find that the several species of schnapper, whiting, flathead, bream, garfish, taylor, trevally (locally known as skipjack), flounders, so-called Colonial salmon (*Arripis*), and many others are identical with the similarly named species of the Melbourne, Sydney, and Adelaide markets. Added to these occur, most notably, the jew-fish, *Glaucosoma Hebraicus*, peculiar to Western Australia, esteemed for the table, and somewhat the aspect of a schnapper; the river or estuarine kingfish, *Sciæna Antarctica*, identical with the mulloway of Adelaide and the jewfish of Sydney and Brisbane; the sea kingfish, *Seriola Gigas*, not unfrequently weighing over one hundredweight, also peculiar to the State, but allied to the Samson fish and yellow-tail of the respective Sydney and Melbourne markets, and the so-called king schnapper, *Beryx Mulleri*, allied to the fish bearing the same name in Adelaide, and known in Sydney as the Nannegai.

The waters in the neighbourhood of Albany and Fremantle produce also several large and valuable market species of the genus *Chilodactylus*, pertaining to the *Cirrhitidæ* or trumpeter family, for which Tasmania is so justly famous, one representative of the genus *Chilodactylus Nigricans*, known at Fremantle as the groper, being identical with the Victorian butter fish. Among the smaller species of fish that demand notice in consequence of their occurrence in practically inexhaustible shoals, to which are added excellent edible qualities, reference may be made to the so-called sea or Fremantle herring, *Arripis Georgianus*. This fish is in no way related to the true herring, *Clupeidæ*, and is identical with the "Ruffy" or "Tommy Rough" of the Melbourne market. It occurs in such profusion throughout the year in the neighbourhood of Fremantle as to constitute a staple fishing and source of sport to all classes of the community, and in both its fresh and smoked conditions is placed extensively upon the market. Under the last-named auspices its resemblance in both flavour and aspect to the

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familiar kippered herring of the old country is by no means remote, and it constitutes in like manner, in the opinion of many connoisseurs, an equally excellent adjunct to the breakfast table. A true herring, *Chatœssus Erebi*, locally known as the Perth herring, abounds in the Swan, Murray, and other Southern river estuaries, and, similarly cured, commands an extensive sale. In consequence, however, of the abnormal development of fine bones in proportion to its size, it is not as highly esteemed as the species previously referred to. Another herring, *Clupea Sagax*, closely resembling the English pilchard, and identical with the Sydney "maray," is not unfrequently taken in shoals off Fremantle, and is excellent eating. The grey mullet tribe, *Mugilidæ*, represents, as in the adjacent States, a substantial and permanent source of food supply in the Perth and Fremantle markets. The large sea-mullet, *Mugil dobula*, is the most important and highly esteemed member of this family, the next in importance being the so-called pilchard, *Agonostoma diemensis*, elsewhere known as the river mullet. Both of these species are extensively placed upon the market in both the fresh and cured conditions. A true red mullet, *Upenæus porosus*, is not unfrequently taken in the neighbourhood of Fremantle.

Farther North, in the Geraldton and Shark Bay districts, the schnapper, mullet, whiting, and a few others are still identical with the Southern types. There commences here, however, an intermingling of the more essentially tropical sea-breams of the genus *Lethrinus*; so-called rock-cods, of the genus *Serranus*; and brilliantly coloured species belonging to or allied to the genus *Genyoroge*. Arriving fairly within the Tropics, the Southern coolwater species entirely disappear, and are replaced by a fish fauna that corresponds very closely with that of the North Queensland coast, and including the majority of the species enumerated and figured by Kent in his volume on the fishery products and potentialities of the Australian Great Barrier Reef. In addition to the several tropical types previously referred to, there occur several species of tassel fish, genus *Polynemus*, distinguished by the free filamentous rays of their pectoral fins. Some of these attain to the calibre of over one hundredweight, are in all cases excellent eating, and are additionally valued in India on account of the superior quality of isinglass that can be manufactured from their sounds or swimming bladders. Giant mackerel of the genus *Cybium*, allied species of the genus *Chorinemus*; so-called John Dorys, of the genera *Drepane* and *Stromatius*; huge gropers, *Oligorus*; giant herrings, three or four feet long, referrable to the genera *Chanos* and *Megalops*; the giant perch, *Lates calcarifer*, identical with a highly esteemed Indian type; numerous species of trevally, distinct from the Southern varieties; and a host of others possessing excellent gastronomic qualities abound throughout that restricted area of the tropical Nor'-West coast-line which has, so far, been systematically investigated. Excepting for the levying of a very limited local supply, this abundant fish harvest of the Northern districts is practically ungarnered, and presents an inexhaustible field for future enterprise.

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Sharks—principally the Ground Shark, Hammer Head, Blue Nose, and the Tiger Shark—are common along all the coast.

Dugong, Whales, and Seals are still found, but are not nearly so numerous as formerly.

Of crustaceans, there are the Cray-fish (*Palinurus Vulgaris* and *Themis Orientalis*), Crab (*Neptunus Pelagicus* and *Cenobita sp.*), Shrimp, and Prawn, all of which are to be obtained in very large quantities. The Cray-fish abound near the reefs which fringe the islands along the coast; Crabs and Prawns are principally found in the rivers and estuaries. An effort is being made to introduce Cray-fish along the Bunbury Breakwater, which has been lately completed. The Cray-fish being far superior in flavour to the imported lobster, its abundance suggests the establishment of canneries as a profitable investment.

Fishing by means of a sunk net or nets containing, or attached to, a bag, cod, or pocket, is prohibited in the Swan and Canning Rivers. (Proclamation, 14th December, 1900.)

The taking of Prawns by means of a net other than a hand scoop net is prohibited by Proclamation dated 6th November, 1901, in that portion of the Swan River extending downwards from a line drawn from Point Walter to Point Resolution, and from the Narrows extending upwards. Also in that portion of the Canning River extending upward from a line drawn due South from Salter's Point. The length of nets used for the capture of Prawns within other portions of the Swan and Canning Rivers open for Prawn fishing must also not exceed twenty-five fathoms, the mesh not to be less than one half-inch.

The only factories now engaged in fish preserving are those situated on the Murray Estuary, about 40 miles South of Fremantle. This river abounds in fish of various descriptions, but the kind principally preserved is the Sea Mullet, which is excellent in flavour, and has already gained considerable repute both in and outside the State.

Fishing by means of a net or fixed engine is prohibited within the following waters:—

In and about the Swan River.—From the Narrows, at Mill Point, in Perth Water, to the Upper Swan Bridge (by Regulation of 7th June, 1892). That portion of the Swan River and its tributaries from the Perth Causeway Bridge upwards (6th February, 1901). Also below Point Walter and Point Resolution, and in that portion of the sea within a radius of a quarter of a mile from the Western extremity of the North Mole, Fremantle.

In the Canning River.—From the Lower Canning Bridge to the Upper Canning Bridge (by Regulation of 7th June, 1892).

Fishing is allowed in the remaining portions of the Swan and Canning Rivers, but the size of the mesh is regulated to be not less than 2¾ inches, under Regulation made 14th September, 1898.

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Net-fishing is further prohibited :—

In the Denmark and Hay Rivers.—Denmark River and that portion of Wilson's Inlet within a radius of half-a-mile from the mouth of said Denmark River; Hay River, and that portion of Wilson's Inlet within a radius of half-a-mile from the mouth of said Hay River. (Regulation, 13th December, 1899.)

In any part of Taylor (Nannarup) Inlet. (Regulation, 13th December, 1899.)

In the Kalgan and King Rivers. (Regulation, 4th December, 1899.)

In that portion of Oyster Harbour bounded by lines starting from Point Henty, and extending Southward along the Western Shore of Oyster Harbour about 20 chains; thence South-Easterly to a point on the Eastern Shore of Oyster Harbour aforesaid, situate 15 chains Southward from Swan Point; thence Northward and Westward along part of the Eastern and Northern shores of said Oyster Harbour to a point due North from Point Henty; thence South to the starting point. (Regulation, 4th December, 1899.)

In the Entrance to Oyster Harbour.—The North and South boundaries being East and West lines passing through points situate 10 chains North and 10 chains South, respectively, from Emu Point; the East and West boundaries being the East and West shores of said entrance. (Regulation, 4th December, 1899.)

In the Murray and Serpentine Rivers, with their Estuaries, the Entrance to Peel's Inlet, and portion of the sea, more particularly described hereunder:—*No. 1 Bank*—Bounded by lines starting from a point on the sea-shore situate due West from the North-West corner of Murray Location 2, and extending North one mile; thence East to the sea-shore, and along it and the entrance to Peel's Inlet Southward and Eastward to a point East of the East end of Creery Island; thence West to said end and Westward along the South shore of said Creery Island to its Southernmost point; thence Westerly to the South-East corner of Murray Location 5; thence by the Western Shore of the entrance to Peel's Inlet and the sea-shore Eastward, Northward, Westward, and Southward to the starting point. *No. 2 Bank*—Bounded by lines starting from a point on the Eastern shore of Peel's Inlet, situate East of the Southernmost point of Goongoolup Island, and extending West through said point for half-a-mile; thence North to the said shore of Peel's Inlet, and along it Southerly to the starting point. To include also the Murray and Serpentine Rivers and their Estuaries. (Proclamation, 5th August, 1903.)

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Herring and Salmon fishing is allowed in all that portion of No. 1 Bank (entrance to Peel's Inlet) situate outside (seaward) the Bar, from the 1st April to the 31st December in each and every year. (Proclamations, 9th June, 1899, and 12th September, 1900.)

Net-fishing is further prohibited :—

In that portion of Koombana Bay situate Southward of a line extending about 64° from the junction of the Stone Causeway with the Bunbury Jetty to a white post on the shore of North Bunbury. (Proclamation, 7th March, 1900.)

In (*a.*) *the Vasse and Wonnerup Estuaries;*

(*b.*) *Their entrances into the sea;*

(*c.*) *That portion of the sea* within a radius of $1\frac{3}{4}$ miles from the mouth of the Wonnerup Estuary;

(*d.*) *That portion of the Deadwater* within a distance of 10 chains North-East from its entrance into the Wonnerup Estuary. (Proclamation, 7th November, 1900.)

Fishing is allowed within that portion of the Deadwater situate North-Eastward of a point 10 chains North-East from its entrance into Wonnerup Estuary, but the size of the mesh is regulated to be not less than 3 inches. (Proclamation, 15th March, 1900.)

Net-fishing is also prohibited—

In the Preston, Collie, and Brunswick Rivers, and Leschenault Estuary. (Proclamation, 9th June, 1904.)

In Thompson's Bay, Rottnest Island. (Proclamation, 30th September, 1903.)

In Champion Bay, 200 yards on both sides of the Geraldton Railway Jetty, and half-a-mile seaward. (Proclamation, 29th April, 1903.)

In Geographe Bay, $1\frac{1}{2}$ miles on both sides of Busselton Jetty, and half-a-mile seaward, for six months in each and every year, commencing from the 1st November. (Proclamation, 16th November, 1900.)

Fishing for Crayfish is prohibited—

In the Swan River and that portion of the sea within a radius of half-a-mile from the Western extremity of the North Mole, Fremantle. (Proclamation, 16th January, 1901.)

Within the sea limit of half-a-mile from high-water mark on Rottnest Island. And also during the months of November, December, and January in each and every year no female Crayfish carrying Ova on the underside of the tail or abdomen may be taken in any portion of the sea; and during said months it is unlawful to offer for sale or have in possession any such female Crayfish. (Proclamation, 27th June, 1900.)

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Seals are protected throughout the State by a close season extending from 1st November to 31st March. (Proclamation, 7th June, 1892.)

Any person using dynamite or any other explosive substance for catching or destroying fish within the territorial dominion of the State, is liable to fine and imprisonment.

The public Oyster Fisheries are protected by statute, under which also licenses for the formation, planting, and protection of private oyster beds can be granted.

Under "The Fisheries Act, 1889," fish of the following species of a less weight than that set against their name cannot be sold or offered for sale under a penalty of a fine varying between £5 and £20, and the forfeiture of the fish, etc.

Schedule.

	Ozs.		Ozs.		Ozs.
Bream	4	Perch or Yellow Tail	4	Sand Mullet or Pilchard	4
Bream (silver) ...	4	Perth Herring ...	3	Skipjack	4
Butter Fish	4	Pike	8	Sole	4
Flathead	4	Rock Cod	4	Taylor	6
Flounder	6	Salmon Trout ..	2	Whiting	3
Garfish	2	Schnapper ...	8	Crayfish	12
Gurnet or Gurnard	4	Herring (sea) ...	2		
Mullet	6				

The species of fish can, however, at any time be added to, or omitted, and the weight altered.

All nets also must be emptied in the water, and not dragged up on land, under a penalty of between £2 and £20.

Fish cannot on any account be used for manure, under penalty not exceeding £20.

Trawling Experiments.

In his report for 1903, the Chief Inspector of Fisheries speaks as follows about the proposed trawling experiments:—

"I am pleased to be able to report that our coastal waters will be exploited during the coming year, with the object of ascertaining whether suitable trawling-grounds exist off our coast, and of discovering new fishing-grounds. Mr. Oxley, of Melbourne, who conducted the trawling operations for the Victorian Government, has entered into a twelve months' agreement with the Western Australian Government, with that object in view. A well-equipped sailing vessel of 90 tons will be engaged in the operations. New Zealand trawling experiments conducted during the year 1901 have resulted in a large company being formed for the fitting out of steam trawlers, with a view to ultimately providing a plentiful supply of fish food, not only for their own, but also for Australian requirements. That our own experiments will be equally successful is a consummation to be hoped for."

Pearl and Pearl-shell Fisheries.

While the ordinary food-fishes of the tropical coast-line of Western Australia represent an as yet undeveloped potentiality, the

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pearl and mother-of-pearl shell fisheries of the Nor'-west have constituted for the last quarter of a century one of the leading assets in the State's wealth, their average annual value within the past ten years being represented by no less a sum than from £50,000 to upwards of £100,000.

Two distinct species of mother-of-pearl shell contribute towards the export trade of this article from Western Australia. The main and more valuable moiety is represented by the large mother-of-pearl shell, *Meleagrina margaritifera*, that is limited in its distribution to tropical waters, and is obtained more or less abundantly from Exmouth Gulf Northwards. This is the species from which massive mother-of-pearl shell articles, such as dessert and fish knife and fork handles, buttons of the largest size, and inlaid work are manufactured. It also represents the species from which the largest and finest pearls are obtained. The wholesale value of mother-of-pearl shell in the London market is subject to considerable fluctuation, the sale price of the larger Nor'-West species having ranged within the past few years from £80 upwards, in March, 1893, sales reaching as high as £480 per ton on the London market, and in earlier years having been considerably higher. The fishing for the Nor'-West shell is now conducted almost exclusively with the aid of diving apparatus, in water varying in depth from four or five to as much as eighteen or twenty fathoms. At these last-named depths the pressure of the superincumbent water is exceedingly trying to the divers, involving, under prolonged exposure to it, paralysis of the limbs, or, it may be, loss of life. The invention of apparatus that will enable the divers to work with immunity from danger at a depth only slightly in excess of that from which shell is now collected would throw open vast fields of virgin shell, and be a priceless boon to the prosecutors of this important industry. In the early days of the Nor'-West mother-of-pearl shell fishery, the shell was obtained with the assistance of natives, who gathered it from the reefs when laid bare by the low spring tides, or collected it by diving, without the aid of apparatus, in shallow water. These shallower inshore banks having for the most part been worked out, led to the discovery of the practically inexhaustible supply that obtains in the deeper waters, ranging from three or four to over twenty miles off the coast.

The second species of mother-of-pearl and pearl-producing shell indigenous to Western Australian waters is that known commercially as the Shark Bay variety, *Meleagrina imbricata*. This species is of comparatively small size, rarely exceeding four or five inches in diameter, and so thin in texture that it is almost exclusively used for the manufacture of buttons of small and inferior descriptions. Shark Bay shell was formerly fished for on account only of the number and value of the pearls that it produced, the shell being regarded as waste material. A range of from £15 to £25 (last quotations £18) per ton represents the somewhat fluctuating prices that this shell has, within recent years, commanded in the London market. While a substantial portion of the pearls produced by the Shark

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High Tide.

Low Tide.

PEARLING FLEET, BROOME, N.W. COAST.

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Bay shell are of excellent shape and lustre, bright golden, yellow, or straw-coloured ones are the more abundant, and are peculiar to the district. While not so much in favour in Europe, these coloured pearls find a readier sale in India and China. The fishery for Shark Bay pearl-shell is conducted on a distinct principle from that of the large Nor'-West species, being collected by dredging after the manner of oysters from the deeper water, and gathered by hand during favourable tides from off the shallow banks. Through persistent and reckless overfishing the formerly prolific shell producing banks of Shark Bay have, within recent years, been so greatly exhausted that a somewhat prolonged period of repose, combined with substantial efforts in the direction of systematic cultivation, are requisite in order to restore this fishery to its former prosperity. A small quantity of Nor'-West shell that was transported to Shark Bay in the year 1893 successfully survived the relatively low temperature of the water during the winter in this more Southern latitude. The capacity of the larger Nor'-West shell to live and propagate in Shark Bay being thus assured, it only remains to repeat these transportation experiments on a substantial scale to inaugurate a new and valuable fishery. As the result of a recent investigation, it is anticipated that the vicinity of the Abrolhos Islands, thirty miles West of Geraldton, will prove equally eligible for the artificial culture of the large Nor'-West pearl shell. The waters surrounding these islands are warmer than those of Shark Bay, and abound with corals, fish, and other marine organisms of an essentially tropical description.

The Nor'-West fishery includes the coastal waters and outlying islands from Exmouth Gulf, in latitude 22° South, to Cambridge Gulf, in latitude 15° South.

The Shark Bay fishery embraces all the waters of Shark Bay, "bounded by a South-West line from Charles Point, on the mainland, to Cape Ronsard, at the North end of Bernier Island; then by the Western shores of Bernier and Dorre Islands to Cape St. Cricq; then by a straight line to Cape Inscription, at the North end of Dirk Hartogs Island, and by its Western shore to Surf Point, and thence by a straight line to Steep Point on the mainland." (*Vide* 55 Vict. IX, section 13.)

No ship can be used or employed on any Pearl Shell fishery of the State, other than that at Shark Bay, without first obtaining a Pearling License, the cost of which is £1.

From the 1903 Report of the Chief Inspector of Fisheries, the following extracts are of interest:—

"*Nor'-West Pearling Industry.*

"During last year 900 tons 13cwt. of shell, with a declared value of £173,865, was exported from the State. These figures show an increase of 111 tons 1cwt. over those of 1902, with a corresponding increase in value of £36,265. Taking the value of the pearls obtained at an estimate of £40,000, the industry represents a

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total of £213,865 for the year's operations. From the returns supplied by the licensing officers at Broome, Roebourne, and Onslow, 400 boats were licensed under the Pearlshell Fishery Act of 1886, showing an increase of 177 boats over the previous year. This increase may be accounted for by the extraordinarily high price of shell obtained during the London March and May sales—the highest recorded in the history of the industry. What practically amounted to a rush set in, and that this was not warranted has been proved by the shell dropping in the latter part of the year to its normal manufacturing value. The following figures, taken from a London broker's report, will be of interest:—During the March and May sales the following were the prices realised:—March: Bold, £17 to £20 2s. 6d. per cwt.; medium, £18 to £24 2s. 6d. per cwt.; chicken, £13 to £16 per cwt. May: Bold, £18 to £19 15s. per cwt.; medium, £16 15s. to £23 10s. per cwt.; chicken, £17 to £18 per cwt. These very extreme rates were, however, not maintained, and at the close of the year prices dropped to £9 10s. to £10 12s. per cwt. for picked shells.

"The total number of male adults employed may be approximately put down at 2,785, of whom 2,480 were Asiatic and African aliens, 245 Europeans, and 60 aborigines.

"To give some idea of the expansion of this industry during the last few years, I have only to quote the returns sent to me from the licensing officers. Up to December 31, 1903, 400 boats were licensed under the Pearlshell Fishery Act, representing a tonnage of 5,985, with an approximate value afloat of £221,850. These figures show an increase since December 31, 1900, of 223 boats, representing a tonnage of 3,505, with an approximate value of £146,850. The total revenue derived during the year amounted to £514, collected from the license fee of £1 per boat and pearl dealers' licenses. I regret to report that the Consolidated Pearling Bill, which provided for a revenue being received commensurate with the importance of the industry, and which was presented to Parliament, was expunged from the notice paper shortly before the close of the session. I trust that this important Bill will receive further consideration during 1904.

"*Shark Bay Pearling Industry.*

"I regret to have to report a decrease in the export of shell from Shark Bay during the year. Prices have been steadily falling for years past, and at the present time only the very best picked shells are sent away. From Customs and other returns I learn that 100 tons of shell were collected, but only 53 tons, with a declared value of £457, were exported. Comparing these figures with those of the previous year—viz., 157¼ tons exported, with a value of £772—a decrease is shown in the 1903 exports of over 100 tons of shell. The estimated value of pearls found during the year is £1,735, making a total value of shell and pearls of £2,192. Twenty-three boats, employing 54 adults, were engaged in the industry during the year. Nineteen exclusive licenses were issued

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under the Shark Bay Pearlshell Fishery Act of 1902, making a total of 72, embracing an area of 27,369 acres at present in existence.

"I am pleased to be able to report that the large mother-of-pearl shell (*Meleagrina Margaritifera*), transplanted from our Northern waters to Shark Bay some years ago, are progressing satisfactorily, and a number of young shell, the progeny of those transplated, were discovered in close proximity to the old ones. The result of our experiments should be very encouraging to those who are at present giving their attention to the cultivation of the mother-of-pearl shell in our Northern waters, and especially to those engaged in pearling operations at Shark Bay."

Turtle and Beche-de-mer.

Neither the fishing for turtle nor for bêche-de-mer has yet assumed those proportions upon the West Australian coast which it may be reasonably expected to reach in future years. For centuries prior to British colonisation it would appear that the Malays were in the habit of repairing in their proas to the reefs and outlying shoals of the far Nor'-West with the object of collecting and curing the trepang or bêche-de-mer which this region produces in considerable abundance. At the present time the fishery for bêche-de-mer is chiefly limited to desultory operations on the reefs in the neighbourhoods of Cossack and King Sound, leaving a vast area of productive ground North and East practically untouched. The species of bêche-de-mer that is most extensively collected from the grounds at present fished is closely allied to, though not precisely identical with, the so-called surf red-fish of the Queensland coast. The superior and most valuable species, including teat-fish, black-fish, and the ordinary red-fish, for which the Torres Straits and the Queensland Great Barrier Reef are pre-eminently famous, have not so far been met with on the Nor'-West reefs, but, it is somewhat remarkable to observe, have been recently discovered, though in relatively small quantities, on the extra-tropical Abrolhos Islands. While insufficient in number in this limited area to constitute an independent trade, the Abrolhos bêche-de-mer should be capable of profitable utilisation in conjunction with other local fishery industries.

Turtle of the most valuable qualities, including the aldermanic green turtle, *Chelone Mydas*, and the tortoiseshell producing hawksbill, *Chelone Imbricata*, abound on the Western Australian coastline on Houtman Abrolhos, and from Shark Bay Northwards. Excepting for local consumption no attempts have hitherto been made to turn these abundant natural supplies to practical account. There can be no doubt that there are numbers of locations on the Nor'-West coast, such as the Lacepede Islands, whereat extensive and profitable stations might be established for the wholesale export of the living animals, and for the curing or preparation of those commercial products of the turtle which have hitherto been mainly obtained for the European market from the West Indies and the Island of Ascension.

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The Chief Inspector of Fisheries, in the report for 1903 already quoted, has the following reference to the

Turtling Industry.

"Applications have been received for the exclusive right to collect turtles in our Northern waters. Steps are now being taken by a syndicate to place the industry on a proper basis, and a small soup factory has been erected at Point Preston. Here the turtles which are sent down from Onslow by steamers are received. With the enormous quantity of these reptiles of the Chilonia family existing in our Northern waters, there should be a great possibility ahead of this new venture."

Oyster Fisheries.

Oysters do not at the present time constitute a leading item in the indigenous fishing industries of Western Australia. Thick-shelled rock oysters, *Ostrea Mordax* and *Ostrea Glomerata*, abound at various places along the coast from Geraldton Northwards, and a considerable number are sent down to the Perth and Fremantle markets from the neighbourhoods of Shark Bay and Carnarvon. There is at the same time, however, an extensive supplementary importation from Queensland and New South Wales. In former years the large so-called mud oyster (*Ostrea Angasi, var.*) identical with the British "Native," was abundant in the vicinity of Albany, but was so exhaustively fished as to have been almost exterminated. In a semi-fossilised state this species also occurs in beds of vast extent in the Swan River basin, its extinction having been apparently brought about by changes in the form of the river estuary, through which means the areas formerly favourable to the growth of oysters are now submerged by fresh water for too long an interval during the winter floods to permit of their survival. Oyster beds that apparently owe their extinction to analogous conditions are likewise traceable in several other estuarine areas of the Northern portion of the State. Steps are taken by the Government to re-establish the oyster beds of Oyster Harbour, near Albany, and to inaugurate the profitable cultivation of the bivalve in the neighbourhood of Fremantle and other suitable localities. Should these operations be associated with the success that may be reasonably anticipated, many years will not elapse before Western Australia should be in a position at all events to produce all the oysters the State requires for home consumption.

Acclimatisation.

On this subject, Mr. L. Le Souef, the secretary of the Acclimatisation Committee, in that committee's seventh annual report, gives the following particulars of the work carried out for the year ended 30th June, 1903:—

Trout.—This year efforts were specially directed to stocking Mundaring Weir, and about 15,000 young trout were successfully hatched and liberated there. The trout were of the Loch Leven

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variety, which are a fine fish, and especially suitable for stocking reservoirs. This year the old-fashioned hatching boxes and methods were discarded, and new methods specially suited to the climate and surroundings followed. The most gratifying success was experienced, the cost proving very much under that of the old methods, while the losses of young fish during their precarious stage were practically *nil*.

Other Fish.—A further shipment of perch was procured, and these were placed in suitable waters. The lakes near the Wanneroo Caves were stocked with these fish.

Deer.—Advices received show that the deer are doing well in the various districts in which they have been placed, notably at the Leeuwin and at Pinjarra. At the Leeuwin the Red and Fallow deer have separated, and now form two herds. A private herd is being started by Mr. Edgar, at Gingin, and another by Mr. Grant, at Newmarracarra, while Mr. A. E. Morgans has the nucleus of a herd at his property on the Porongorup Range, so that it would seem that in a few years these beautiful animals will be fairly acclimatised in the less peopled parts of the State, and later on afford good sport. The deer already introduced by the committee include Red, Fallow, Rusine, and Hog Deer.

Laughing Jackasses.—Reports from the principal places to which laughing jackasses were sent show that they are doing well and multiplying. In view of their value to agriculture, a considerable augmentation to their numbers was made during the year, whilst the number bred seems to have been considerable.

Partridges.—Some French Red-leg partridges have been turned down in a suitable locality, and although it is almost certain that they would do well if they could escape cats and pot hunters, it is rather early at present to judge whether they will be able to hold their own.

Peafowl.—Some peafowl have been liberated near the Wanneroo Caves, and seem to be well able to look after themselves; they are also protected by the settlers, who like to have such handsome game birds about. Others will shortly be liberated in another locality, where they can be watched and protected, as from their large size and brilliancy of plumage they are very conspicuous in anything but a very heavily wooded country.

Pheasants.—A trial has been made of liberating pheasants in several suitable localities, and from reports received they seem to be thriving well. Of the suitability of the country there can be no doubt, the principal difficulty being the natural enemies to which they are exposed, especially domestic cats gone wild.

Quail.—A large number of Egyptian quail have been liberated at several places, and when since seen appeared to be thriving.

White Swan.—Success has been again met with in breeding these beautiful birds, and the public waters of two places have received pairs. Others will be shortly sent away.

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Black Swan.—It is to be regretted that it has been found impossible to breed the Black Swans on the Swan river in any number, owing to the wanton robbing of their nests. On this account 30 swans were imported from Melbourne, and turned out on the river to keep up the stock of decoy birds. The few swans that are bred yearly on the river are not pinioned; they are, consequently, able to leave the river to breed, returning later on with their young. Some of these unpinioned birds are so tame that it is possible to feed them out of the hand, and even to pick them up. During the season, when food was abundant in the river, upwards of 350 wild swans were counted at one time in Perth Water, and it was *reported* that as many as 500 had been counted.

Doves.—The various kinds of doves turned out at South Perth are steadily increasing, and spreading farther out into the country. A special effort is going to be made to settle a number in King's Park.

English Goldfinches.—Some of those beautiful little members of the feathered tribe, the goldfinches, have been liberated at South Perth.

Angora Goats.—During the year twelve Angora Goats were obtained for acclimatisation purposes, the trial being made under conditions especially favourable for judging their value from a practical point of view. The experiment has proved most successful, and it has been reported that on country capable of carrying 2,000 sheep, namely, second-class, rough, scrubby land, it will be possible to run 2,000 goats, in addition to the sheep, as the goats, being browsers, only eat the scrub, and do not interfere with the feed eaten by the sheep. The goats are also said to be good mothers, and easy to handle. They seem instinctively to avoid the poison plant, or else are not affected by it to the same extent as sheep. Goats seem to be especially fond of seedling eucalypti, and this peculiarity of taste might be taken advantage of when clearing land, as, if ringbarking were done in areas inclosed with netting fences, the troublesome second growth of scrub could be turned to profit, instead of being a heavy expense, as it ordinarily is in some classes of country.

Mule Breeding.—Attention ought certainly to be given to the question of mule breeding. There is no doubt that for some parts of this State the mule would be invaluable, especially for prospecting and general work on the goldfields and in the North. In America the value of the mule for hard work on rough feed is universally recognised, as in general hardiness and usefulness it approaches very closely to the camel.

Egyptian Geese.—Some of those handsome and hardy waterfowl, the Egyptian Geese, were liberated at Lake Sepping, near Albany, and it seems certain that they will thrive equally well there as they have done in other parts of Australia.

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5.—FLORA.

(By Alex. Morrison, Government Botanist.)

The flora of Western Australia, as would be expected from the great area of the State, includes a very large number of plants, 3,854 species of *Vasculares* being recorded in the list given in the *Year Book* issued in 1902, in which those confined to the tropical region are not included. The flora of the South-Western corner of the State is, however, one of the richest known, and this abundance of species, and also the existence of extensive Eucalyptus forests, are associated there with a copious rainfall, which is greatest near the coast and diminishes towards the interior. The area thus characterised corresponds roughly with the South-West Division of the State, and is bounded on the Easterly or inland side by the line indicating an annual rainfall of 15 inches, and on the West and South by the coast line from the Murchison River to Cape Leeuwin, and from there to Esperance Bay, the extreme South-West having a rainfall of about 40 inches. The fall of rain takes place almost entirely between the months of April and November, except near the South coast, where additional showers occur at other times, and it is constant and reliable for that season. This period of seven months of cool moist weather, when the vegetation is in active growth, may be regarded as Spring, in contradistinction to the hot summer period, between November and the following April, during which the majority of plants are dormant for a longer or shorter time. Some deep-rooted plants, however, are stimulated by the heat to produce their flowers or new foliage during the hottest part of the summer.

Western Australia is believed to have retained its present distribution of sea and land for a longer period than most other countries, and to have been for a longer time free from those geological catastrophes that cause the extinction of some forms of life, and their gradual replacement by others; and we may infer that the organic forms at present existing must have become, during that long period of time, very well adapted to the conditions of climate and soil in which they are placed. While the moisture and moderate temperature of the wet season are favourable to rapid and luxuriant growth, the hot and arid summer tries the endurance of the most hardy; but many plants have become provided in various ways with the means of withstanding the influence of severe heat and drought characterising the climate of most parts of the State. The presumably high antiquity of the existing types of vegetation in Australia, which has allowed time for the development of these special means of resistance, has resulted in the presence, to-day, of a flora having a peculiar character, as compared with that of the rest of the earth. The flora of a remote period has been preserved and specialised under conditions that are uncommon elsewhere, and in Western Australia this specialisation has reached the highest degree.

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Not only are the majority of Australian species of plants different from those of other countries, but also larger groups—genera, tribes or even whole families, are entirely or chiefly confined to Australia. A considerable difference exists between West Australian plants and those of the Eastern half of the continent, a large number of species and many genera being endemic on each side, but more in the Western than in the Eastern half; at the same time many purely Australian types are common to both regions. A correspondence of a more general nature exists between Australia and South Africa, some of the natural orders little known elsewhere being represented in both, but with the smaller groups and species quite different. This suggests the possibility of a former land connection between the two continents, whether direct across the Indian Ocean, or by way of the Northern hemisphere, or through the Antarctic continent.

In taking a general view of the vegetation of Western Australia, we find that the South-West Division is clothed with Eucalyptus forests, whether on the sandy plains near the coast or on the hills of the Darling Range. The shade of the gum-trees is not so dense as to prevent the growth of shrubs and herbaceous plants in great numbers. In the interior are sandy plains of wide extent, with frequent salt lakes, monotonous and dull except in spring time, when decorated with the flowers of the shrubs and herbaceous plants composing the scrub growing there; while in the tropical Northern latitudes, and in the temperate South-East, are extensive tracts of pasture land.

Considered in relation to the wants of man, it must be confessed that the Australian flora supplies little of any value as food. The *Gramineæ*, or Grasses, however, are always of importance as food for stock, and they are represented by very nutritious species of *Astrebla*, *Andropogon*, *Panicum*, *Eragrostis*, *Anthistiria*, *Danthonia*, and many others among the 125 indigenous species. As forage, the Saltbushes (*Chenopodiaceæ*), found in the most arid districts, are of great importance, though as yet very imperfectly appreciated. In direct commercial value, however, the timbers supplied by the various gum trees are second only to the gold production among the natural products of the country. Species of Eucalyptus everywhere form the prevailing vegetation, and give a special character to the Australian landscape. Some of the most useful, as the Jarrah (*Eucalyptus marginata*), Karri (*E. diversicolor*), Wandoo (*E. redunca*), Tooart (*E. gomphocephala*), and Gimlet (*E. salubris*), form immense forests of great economic importance to the State, not alone for the timber they supply, but also for the oil yielded by the leaves, and the tannin and resin in the bark. Other species, on account of their evergreen foliage and beautiful flowers, are desirable subjects for cultivation in shrubberies and parks; such are *E. ficifolia*, *torquata*, *erythronema*, *tetraptera*, *pyriformis*, *macrocarpa*, *calophylla*.

Special interest is attached to the flora of Western Australia on account of the large proportion of endemic plants, some of which

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are at the same time aberrant in relation to the majority of existing types, as shown in *Cephalotus*, the Pitcher-plant; *Byblis*, classed among the *Droseraceæ*, or Sundews; *Nuytsia*, a non-parasitic tree of the Mistletoe family; *Anigosanthus*, the Kangaroo-paw, and many others. From a spectacular point of view, the vegetation is remarkable for the profusion of flowers and the brightness of their colours, in correspondence with the clear sky and dry atmosphere that distinguish the climate of the State. Of the larger natural orders, the *Proteaceæ* are specially characteristic of Western Australia, the great majority of the 410 species being shrubs bearing interesting flowers and foliage. The *Myrtaceæ* number 407 species, including 54 Eucalypts, and many beautiful shrubs in the genera *Darwinia*, *Verticordia*, *Calythrix*, *Hypocalymma*, *Kunzea*, *Balaustion*, *Beaufortia*, *Leguminosæ* are represented by many ornamental plants, and number, in all, 510 species, of which 145 are Acacias. A considerable number, especially Oxylobiums and Gastrolobiums, are virulent poisons, and being plentiful and widely distributed occasion much loss of farm stock. Some beautiful shrubs show a predilection for the desert interior, and among these are the Eremophilas or Desert-prides, species of *Malvaceæ*, *Verbenaceæ*, *Epaerideæ*, and *Proteaceæ*. The *Compositæ* are prominently represented by many fine Everlastings, and the *Stylideæ* and *Goodeniaceæ* furnish illustrations of purely Australian tpves. Of the other natural orders, the following may be enumerated as including beautiful or interesting plants:—The *Pittosporeæ*, *Tremandreæ*, *Sterculiaceæ*, *Rutaceæ* *Droseraceæ*, *Umbelliferæ*, *Solanaceæ*, *Lentibularineæ*, *Amarantaceæ*, *Thymeleæ*, *Casuarineæ*, *Santalaceæ*, *Cycadeæ*, *Orchideæ*, *Liliaceæ*, *Restiaceæ*. Owing to the absence of mountains of sufficient height there is no alpine flora, and Cryptogamic plants are comparatively few, as would be expected in a climate so dry. Ferns, mosses, and fungi are accordingly much less conspicuous than in other lands; but the Marine Algæ are exceptionally rich and interesting.*

* Visitors passing through Perth may conveniently see illustrations of West Australian plants growing in their native soil in the King's Park, where, under protection, the natural conditions of the original forest are retained.

6.—FOREST RESOURCES.

(By the late J. Ednie-Brown, Conservator of Forests.)

I have much pleasure in supplying a condensed account of the Forests of Western Australia, which, however, necessarily, cannot be so comprehensive as one would wish in consideration of the magnitude and increasing importance of the interest involved.

In all my experience of forests I have not been privileged to deal with anything so full of possibilities towards permanent national wealth as is the case with those in this State, and thus I

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may be permitted, first of all, to indicate some general facts bearing upon the subject and appropriate to a full and better understanding of this branch of rural economy in these days.

A few years ago Australia was known, to the great productive population of the world, as a source only for the supply of gold and wool; and to-day even, notwithstanding her vast natural forests, she has no statistical position as an exporter of timber or of materials manufactured from it. This fact, in the face of an estimated area of 47,000,000 acres, as spread over all the States upon which useful marketable timber is growing, is significant, and shows one how low we stand internationally in the timber trade, notwithstanding our great advantages and possibilities.

It is true that the phrase "Australian Hardwoods" is now well known in commercial circles all over the world. We see it quoted in our cables from Europe, America, India, and Africa, and we read of it in the most important scientific journals and magazines of the present day; and although it embraces a large and comprehensive subject, and one of very great importance commercially to these States, still, strange to say, the scope of its application and the intrinsic value of the commodity to which it refers are extremely vague to the ordinary reader, who is equally in the dark as regards the systematic administration of the forest lands as a part of sound economy. We have, there is no doubt, to acknowledge one example of systematic administration in the States, and to recognise its existence to some extent in two other cases, but, considered as a whole, Australia is practically a stranger to the science and art of arboriculture, as it is, unquestionably, to the value of its 600 species of timber trees. I am, nevertheless, pleased to be able to state that the forests of Western Australia are yet practically unharmed for all purposes of successful conservation and ordinary thinnings and clearings of the matured timber. This fact must be emphasised to the people and to the markets of the world generally. The other States, however, cannot say the same thing.

The forests are Nature's gift, and should be looked upon and dealt with accordingly, as an inestimable inheritance of great commercial and climatic value; besides, much of the land upon which the best timber grows is, as a rule, of little or no value for agricultural purposes, and I maintain, without any fear of logical contradiction, that what is now upon it is the very best kind of crop that will ever be seen there. To destroy it, therefore, for the sake of a few more blades of grass, is suicidal and reprehensible in the extreme.

I want it to be distinctly understood that, although I touch upon the timbers growing upon other portions of the State, this is practically a report upon its South-Western District only, and as this district embraces what may be termed the only real commercial forests of the territory, the purposes of this contribution to the *Year Book* will be thereby served.

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The Principal Forest Trees of the State.

The following is a list of the principal members of our forest flora, so far as yet known, giving their natural orders, systematic and vernacular names, and then a short descriptive reference to each tree showing its uses and possibilities:—

Natural Order.	Systematic Name.	Vernacular Name.
Leguminosæ	Acacia saligna	Wattle.
"	" acuminata	Raspberry Jam.
"	" microbotrya	Badjong Acacia or "Wattle Gum"
Myrtaceæ	Agonis flexuosa	Peppermint tree.
Proteaceæ	Banksia verticillata	River banksia.
"	" littoralis	Sea-side banksia.
"	" attenuata	Narrow-leaved banksia.
"	" Menziesii	Menzies' banksia.
"	" ilicifolia	Holly-leaved banksia.
"	" grandis	Great flowering banksia.
"	" dentata	Toothed banksia
Casuarinaceæ	Casuarina Fraseriana	Sheaoaks.
"	" glauca	
"	" Decaisneana	
Myrtaceæ	Eucalyptus marginata	Jarrah.
"	" diversicolor	Karri.
"	" gomphocephala	Tuart.
"	" cornuta	Yate gum.
"	" calophylla	Red gum.
"	" loxophleba	York gum.
"	" patens	Blackbutt.
"	" oleosa	Mallee.
"	" rostrata	Flooded gum of the Interior.
"	" rudis	" " South-West.
"	" redunca	Wandoo.
"	" decipiens	Flooded gum.
"	" ficifolia	Crimson-flowering gum.
"	" longicornis	Morrell.
"	" salmonophloia	Salmon gum.
"	" salubris	Gimlet-wood.
"	" megacarpa	Blue gum.
"	" pyriformis	Red-flowering Mallee.
Coniferæ	Frenela verrucosa	Cypress Pine.
Myrtaceæ	Melaleuca Leucadendron	Paperbark.
Santalaceæ	Santalum cygnorum	Sandalwood.

The forests of Western Australia contain, as we see in this list, a very considerable number of genera and species of trees, but of these a few only are at present known to be of any real commercial value. It is, of course, to these that this report has special reference, and in order to clearly specify them, I shall now enumerate their peculiarities, properties, and uses.

Jarrah.

(*Eucalyptus marginata*).

This is without doubt the principal timber tree in the Western Australian forests, and no one would for a moment dream of speaking of it in other terms. It is predominant above all others in its extent of forest, the various uses to which it is or can be applied, the part which it is now taking in the great timber export of the State, and the esteem in which it is locally held. Jarrah and Western Australia are almost synonymous words, and, as this has been the case from the earliest days since the foundation of the State, so it will now remain so long as a Jarrah forest exists. I do not mean by these remarks to disparage in the least degree any of the

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other commercial woods of the country, but simply to emphasise the fact that Jarrah is the principal indigenous timber of this part of the Australian Continent.

In general appearance the Jarrah resembles what is known in the other States as the stringy-bark. Its likeness to this division of the Eucalyptus family is very marked. The bark is therefore persistent, fibrous, and of a dark grey colour, although more deeply indented in its longitudinal furrows than the stringy-bark.

It is not uncommon to find considerable areas of Jarrah forest where many of the matured trees attain heights of from 90ft. to 120ft., with good stems 3ft. to 5ft. in diameter, and 50ft. to 60ft. to the first branch. Such places would be described as first-class Jarrah forest. Taking an average, however, of these forests, I think a Jarrah tree of a good healthy stamp and one representing a fair specimen of its kind would run about 90ft. to 100ft. in height, and from 2½ft. to 3½ft. in diameter at the base. Under such conditions and in fairly favourable habitats, trees of this size may be expected to be sound and convertible into good marketable timber without much waste.

The Jarrah is confined in its distribution to what is known as the South-Western Division of the State, and this is practically its geographical limit. This district lies along the Western coast of the State, between latitudes 31 and 35 degrees South, and longitude 115 and 119 degrees East, and represents an area of country extending nearly 350 miles from North to South, and between 50 to 100 miles from East to West, embracing all that portion of the country upon which the heaviest rains of the season fall, the annual average rainfall representing 40 inches in the South, and 35 inches in the North.

The Jarrah is purely a semi-coastal tree, by which I mean that it is not found anywhere strictly beyond the influence of the sea, and yet is not at all partial to the direct effects of the sea-breezes. Perhaps the best forests of the species are found from 20 to 30 miles off the coastal line. Whether this fact is only co-existent with the heavy rainfall, and whether, with an equal rainfall farther inland, the growth would be as good as that along the coast, I am not prepared to say.

The principal habitat of the tree is therefore along the tablelands and slopes of the Darling Range, which runs through nearly the whole of the South-Western District. Perhaps the best areas of Jarrah lie along that portion of this range from the Blackwood River North to the Helena River, with the choicest portions midway between these two points.

In all cases this tree delights in an ironstone formation, and it would almost appear as though the rougher and the more the site is composed of ironstone rocks and barren of almost any other vegetation, the better the tree will grow. It is certainly beyond a doubt that, under such circumstances, the timber attains its greatest degree of soundness, strength, and general durability. There are,

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Jarrah (*Eucalyptus marginata*) **Forest.**

Karri (*Eucaly* *olor*) **Forest.**

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it is true, some fine belts and patches of Jarrah forest to be found upon many of the lower-lying portions of the district referred to, and where the geological formation is composed of ironstone—as for instance in the country lying between Quindalup and Karridale—the timber is good in every respect; but where these lower-lying portions have fairly good sandy-loam soils the timber is sure to be more gummy and less durable than that on the higher ranges.

Much has, of course, been said and written about this timber, but it is not my intention to wade through these details and give the results here; suffice it to say that it is one of the most valuable of Western Australian, and the best known of all Australian, timbers. My own opinion of it is that it is one of great excellence, and may be looked upon as one of the principal timbers of Australia for general constructive purposes. I have been shown many specimens with surprising records of durability in the ground and in water, salt and fresh, and these of themselves testify to its wonderful excellence. I have, however, observed also that this timber is variable in its chief attractive properties, and that it is sometimes less durable than at others. This, no doubt, is accounted for by cutting at the wrong season of the year, by the character of the soil upon which it is grown, and other matters which I shall deal with later on. The weight of the wood, when newly cut, is a little over 70lbs. per cubic foot, which is reduced to 60lbs. when thoroughly seasoned. It is red in colour, polishes well, and is comparatively easily worked. Some of the principal uses to which it is as yet applied are:—Wood-blocking, piles, jetties, bridges, boat-building, posts, furniture, railway sleepers. It makes the best charcoal of any timber in the State. Its adaptability for all kinds of out-door work is well known, and hence it is considered the staple timber of Western Australia.

Karri

(*Eucalyptus diversicolor*).

This is the giant tree of Western Australia, if not of the whole Australian Continent. The latter remark is, however, disputed; but the assertion is made without much fear of contradiction. It is not so well known as the Jarrah, owing to the limited field of its growth, and the, at present, comparative inaccessibility of its haunts.

There is much to be said in favour of this member of our forest flora. In its young stage it can hardly be beaten as a highly ornamental tree, being regular in its growth, straight, and umbrageous, its leaves changing in a few years from being of an oval shape to those long broad ones which mark its more matured condition. I consider that in this respect, and in its general appearance as well, it resembles greatly the sugar gum of South Australia (*E. corynocalyx*). There is no doubt that this is the finest and most graceful tree in the Australian forests. When it is matured, and has attained large dimensions, its appearance is simply grand in the extreme, and in this respect, at least, the Karri puts the Jarrah far

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into the shade. The trees are almost always of straight growth, and tower skywards for great heights without having even the semblance of a branch. So marked are they in these respects that they look like a mass of upright candles. The bark is smooth, yellow-white in appearance, but not persistent like the Jarrah. It, therefore, peels off in flakes each year, and thus the tree has always a clean bright appearance. In consequence of this it is frequently spoken of as a white gum, although known as the Karri. The height of these trees is almost phenomenal, presenting astonishing productions of Nature. As a rule an average tree may be put down at 200ft. in height and 4ft. in diameter at 3ft. to 4ft. from the ground, and about 120ft. to 150ft. to the first branch. Trees of this size are generally sound in every respect, and may be expected to turn out timber free from the usual blemishes of dry rot, gum veins, etc., to which large trees are frequently subject.

Trees of the size indicated are common objects in the Karri forests, but much larger specimens are of course met with now and again. For instance, on the Warren River, it is not unusual to find trees which attain 300ft. in extreme height, over 180 feet in height to the first limb, and from 20ft to 30ft. in circumference at the base Of course these are exceptional cases, but still they do exist. The finest tree of this kind which I came across during my trip was at Karridale (M. C. Davies & Co.). This is called "King Karri," and the following are some measurements taken in connection with this grand specimen :—

34ft. in circumference at 3ft. from the ground.

160ft. to the first branch.

14ft. in circumference at the first limb.

Over 200ft. in extreme height.

From these figures it will be seen that the bole of this tree from the bottom to the first limb contains nearly 6,000 cubic feet of timber. This means that it has a weight of over 40 tons in all; that it would take one of our ordinary mills at least four days to convert it into sawn stuff; and that it would form about a quarter of the loading capacity of one of the ships which form the fleet of our present export timber trade. These figures speak for themselves, and need no comment. I question if there could be found appliances in the State at the present moment to deal with this forest monarch. Similar cases might be cited, but this one will give a fair idea of the enormous dimensions to which this species of timber sometimes attains.

The "Karri" is strictly confined in its range of locality to the South-Western portions of the great South-Western Division of the State, or that part of the latter lying between Cape Hamelin on the West and the Torbay Estate, near Albany, on the East. Its geographical confines are embraced within longitudes 115 degrees and 118 degrees East, and latitudes 34 degrees and 35 degrees South. The timber is red in colour, and has very much the appearance of the Jarrah; indeed, so like are the two, that it takes a good

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Tuart (*Eucalyptus gomphocephala*) **Forest**

Wandoo (*Eucalyptus redunca*).

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judge of both to distinguish each. It is hard, heavy, elastic, and tough, but does not dress, nor can it be wrought so easily as its contemporary.

It is said that for underground purposes or waterworks the timber is certainly inferior to some other kinds, especially to that of the jarrah, and there can be no doubt about this fact, which has been demonstrated time after time in the State. And still it is only fair to say that instances have been brought under my notice where posts and slabs of the timber have been known to have been in the ground for 30 and 40 years with only an ordinary amount of decay. This is certainly very puzzling, and makes one doubtful in regard to the conclusions generally which have been arrived at in regard to this timber. However, as may be seen from the comparative tests which have been made in regard to its tensile, crushing, and breaking strength, it ranks as a timber of a very high order indeed. We must, therefore, pending other and more general experiments, look upon the Karri timber as one best suited for superstructural works. For bridge planking, shafts, spokes, felloes, and large planking of any sort, flooring, general wagon work, and beams, it is unequalled in this State. For street blocking it is also valuable, and for this purpose seems to be equal to, if not better than, its colleague, the jarrah, in that its surface by the wear caused by the traffic does not render it so slippery for the horses' feet. As is well known, this timber is being largely exported for the London street paving.

Tuart.

(*Eucalyptus gomphocephala*).

This is another of the commercial trees of the State, and although the area occupied by it is comparatively limited in extent, still its importance is great, and hence it must have a place in this section of the classification. The technical designation (*gomphocephala*) has reference to the markedly peculiar swelling or hanging-over appearance of the lid of the calyx tube. This is a very marked feature of the species.

This handsome Eucalypt has a wonderfully bright and cheerful appearance in the forest. The bark is of a greyish-white colour, and is smoothly crinkled and persistent throughout. The trees, therefore, are always clean and bright-looking. In the young stage, the species forms a very ornamental tree, and is planted as such in some of the other States. It is straight, well clothed, and has a beautiful bright-green leaf, and in this respect is not unlike the Karri. When the tree has developed out of the seedling and sapling stages, the leaves get more narrow and elongated than formerly. In height, this species attains sometimes to 150 feet, and in circumference to more than 22ft. at the base. In some cases the trees run up to 70ft. and 80ft. without a branch, but, as a rule, they have heavy tops with boles about 40ft. to the first branch. They do not form a dense forest, but appear to like plenty

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of individual room, although this observation may be only one of conjecture from the present appearance of what remains of the Tuart forests.

Sandalwood

(*Santalum cygnorum*).

This, although only a tree or shrub, is an important factor in the timber industry of Western Australia, and therefore has a place in the description of those forest products which have assisted to build up the export trade of the State. This species is somewhat peculiar in its appearance, and certainly has more of the character of a large bush than of a tree proper. It has a low depressed habit, and is consequently decidedly branchy and heavily topped. It is seldom found more than 8in. in diameter, and from 12ft. to 18ft. in height, with stems about 8ft. to 10ft. in length. In a good many cases, however, stems have been found measuring over a foot in diameter and 12ft. in length, these weighing from 3cwt. to 6cwt. Trees have been cut which produced timber weighing more than half a-ton. This tree is found fairly distributed over the inland parts of the State, except in the South-Western portion of it. It grows most freely on barren, sandy soils, and is frequently intermixed with the Wandoo, York Gum, and Morrell. It is not gregarious. The present revival of the Sandalwood trade is encouraging in view of the success which has attended the experiment of the Bureau of Agriculture in Sandalwood culture at Pingelly which, I am confident, warrants further efforts in this direction.

This brief review of what are at present known and recognised as the trees which supply the export timber trade of the State, does not comprise the whole of the forest wealth of the territory, and a brief reference to the principal members of what may, for distinctive reference, be classified as being of a secondary type is necessary in order to make this article more complete, more especially as I consider that some of these trees possess timber of a high class, and will yet become, if they are not now, of considerable importance to the State.

Wattle

(*Acacia saligna*).

The word "Wattle" is rather ambiguous, and, in Australia generally, is applied to any species of the Acacia family. In this case its application, however, has reference only to *A. saligna*, from which the bark containing the mimosa tannin in this State is obtained. In Müeller's "Select Extra-tropical Plants," it is designated *A. leiophylla*, on account of the smooth character of the leaves.

The Wattle is a small tree at best, rarely exceeding 30ft. in height and one foot in diameter. It is, however, of a very spreading habit, with timber of considerable size and good girth; consequently each tree bears a fair quantity of bark. In appearance, it is a somewhat handsome member of our forest flora, and as it is

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umbrageous and lives a fairly good number of years, it may be considered a fitting subject for avenue and shade purposes. I have seen it in various parts of the State South of the 30th degree of latitude, but as to whether it was in all cases the result of natural growth I am unable to say; possibly not, as, being a rather handsome tree, it may in some instances have been planted for ornamental purposes. In any case, however, the South-Western District of the State is the natural habitat of the species. It appears to frequent deep rich places, where there is a fair amount of moisture, although not of a stagnant nature. A special feature of this tree, and one which commends itself for cultural purposes, is that it sends out suckers from the old stump after the parent tree has been cut down. This is a valuable peculiarity of the species. According to analysis, the bark contains some 30 per cent. of tannic acid, and as the tannin-bearing trees here are somewhat scarce, its cultivation should form a subject for industrial attention.

Raspberry Jam

(*Acacia acuminata*).

This is another acacia, and well-known in the State. It is a small tree of about 30ft. in height, with stems reaching to one foot in diameter, and boles 10ft. to 12ft. in height. It is of a handsome rounded shape when allowed to spread out its branches, and the appearance of the leaves is bright green and somewhat pendulous. The vernacular name is derived from the peculiar scent of the wood, which is wonderfully similar to that of raspberries. This is truly remarkable, and has to be smelt to be appreciated. An oil of a similar flavour is obtained from the wood by distillation. The wood is very dense, and is largely used for fencing, survey posts, etc. In the ground it seems to last for ever, and has the peculiar faculty of being impervious to white ants. It is a beautiful wood, dark in the middle, with a white margin on either side, very heavy, and would make an excellent timber for cabinet and ornamental work of all kinds. At present it is sometimes turned into pipes and walking sticks. A large quantity is now being yearly cut down and burned in clearing the land.

Badjong

(*Acacia microbotrya*).

This is what is known to the colonist as the "Wattle Gum." It is found here and there along the flats and river banks of the humid districts in the South-West, but nowhere in the dry, hot portions of the State. Its common name has reference to its distinctive peculiarity of yielding or exuding large quantities of gum each year. For the production of this useful and valuable material it is a tree of some commercial interest. I have noticed it over 40ft. in height in favourable places, with a diameter of nearly 18in. Although I have not actually seen it tried for the purpose, I am of the opinion that the timber of the species might, with advantage, be utilised as ordinary barrel staves and for soft wooded turnery of various kinds.

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Peppermint

(Agonis flexuosa).

This is sometimes called the "Willow Myrtle" of the South-Western portion of the State, but it is more generally known as the "Peppermint Tree." It is a well-known tree here, and is found abundantly along the sand banks and river estuaries of the Western coast. It is therefore purely coastal, and is seldom seen farther inland than 15 or 20 miles, and then only in the flats and sand-drifts or washes of the more sheltered portions of the rivers. In exceptional cases I have seen it 40 miles from the coast, but only a few individuals in specially favourable spots. The species is very handsome, and, with its dense, drooping foliage, makes a fine tree for shelter, shade, and ornamental purposes. As a tree for street planting it is well suited, and may be seen in the streets of Albany, Bunbury, and Busselton, where, at the latter township especially, there are some fine avenues of it. It may also be seen growing in Adelaide Terrace, Perth. The timber is hard, durable, and makes an excellent firewood. The leaves, when crushed, emit a strong perfume resembling peppermint, hence the name. The oil distilled from the leaves possesses strong antiseptic properties. The "Peppermint Tree" often grows to over 50ft. in height, with diameters of stem two to three feet at the bottom.

Banksia

(B. verticillata, B. littoralis, B. attenuata, B. Menziesii, B. ilicifolia, B. grandis, B. dentata).

These trees and shrubs form an interesting feature in the forest flora of this part of Australia. They are, however, with one or two exceptions, more ornamental than utilitarian, and I shall therefore only refer to them briefly in a body, and not individually. What is known as the "River Banksia" (*B. verticillata*) attains the dimensions of a fair-sized tree, and is always found growing on the rich alluvial flats or banks of rivers. It is a rather handsome and well-grown tree, and when in flower with its yellow-red, erect cones, combined with its light green leaves, has a very striking appearance. The wood of this species is soft and light-coloured, and is used in furniture making and for some purposes in house fittings. It would, I think, make good staves for casks. The timber of all the Banksias is largely used for firewood.

Sheoak

(Casuarina).

Of these Casuarinas there are several species in the State which come under the category of trees. The ones enumerated in the list at the beginning of this section of the forest trees of the State are the most prominent members of the family here. *Casuarina Fraseriana* is the species chiefly found in the South-Western Districts. It yields a good timber for furniture purposes; is fairly light in weight, and beautifully grained in its growth, and is (or was) largely used for shingles, for which purpose it is well

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Giant Red Gum, Darkan.

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adapted, being easy to split and durable. It is also a very ornamental tree, and is therefore suitable for planting in parks and pleasure grounds. It is very gregarious, and is found in clumps here and there through the Jarrah and Karri forests. I have seen it on dry knolls, upon poor soils, and upon rich river flats as well, but always of greater size and beauty upon the latter. The other Casuarinas mentioned in my list, as well as other species not enumerated, are not of much commercial value, although each has its own local uses.

Red Gum

(*Eucalyptus calophylla*).

Next to the Jarrah there is no tree which is so widely distributed over the timber regions of the State as the Red Gum. We find it intermixed with the Jarrah, Wandoo, York Gum, and Karri. In some places it takes precedence, as regards numbers, of any of the trees mentioned, but in only a very few cases can it be called gregarious, and even then only upon comparatively small patches. All over the South-Western Division of the State it is therefore a common member of the forests, and this, so far as I am aware, embraces the extent of its local habitat. This gum is a "kino" of some considerable value for its medicinal properties. It exudes from the tree in a thick treacly condition during the summer—generally from the trunk, but frequently from the main limbs as well, thus giving the leaves and herbage under the trees the appearance of being bestrewed with blood. It is worth about £25 to £30 per ton, and is easily collected, either in the liquid or dry state. It is used locally for tanning purposes. The bark of this species is of a hard, rough, and irregularly-furrowed or broken appearance, therefore adding considerably to its rugged aspect. Unfortunately, although such a widely-distributed species, its timber can only at present be classed as of second-rate quality. This, of course, is owing to the gum veins which intersect it in every direction; otherwise the wood is of an excellent kind, and is used locally in short lengths for such purposes as axe and other handles, spokes, naves, rails, barrows, shafts, and other farming necessities. It is not used for underground work of any kind, owing to its ready absorption by white ants. It makes splendid firewood.

The excellence of this tree, however, lies in its uniform umbrageous and spreading character, and this gives it the unqualified name of being the best shade gum in our forests. When standing alone, and allowed to spread and develop its branches, this tree forms a very handsome, picturesque, and shady object. In those portions of the country which are devoted to stock raising, a few specimens of the kind become a necessity in the summer months. The flowers of the tree are large, white, prolific, and full of honey. In consequence of this fact the apiculturists of South Australia are planting it round their holdings. It is fast-growing and highly suited for ornamental planting.

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Wandoo

(*Eucalyptus redunca*).

This is sometimes referred to as the "White Gum," but more generally, I think, as the "Wandoo." The specific name which it bears refers to the curvature of the lid of the seed vessel, but this is hardly sufficiently pronounced to justify the deduction. "Wandoo" is the aboriginal term applied to the species. It has a very large range of habitat, and may be said to be the principal forest tree on the Eastern slopes of the Darling Range.

In appearance, it has a yellow-whitish, blotchy look, not clean-white like the Karri, but always more or less speckled, though still smooth. It is a well-balanced, sturdy-looking tree, and is at all times a clean, bright object in the landscape. As a rule this tree is not very large, but, upon an average, specimens 60ft. to 80ft. in height, with diameters of from 1ft. to 2½ft. may be taken as fairly representative of the species. It is true that I have seen individual trees a little over 100ft. high and three feet in diameter at the base, but these were exceptionally large for the class.

I am pleased to say that the timber of this tree is, although occasionally spoken of in an indifferent manner, of a rather superior character. It is hard, very dense, somewhat dull yellow or darkish yellow in colour, durable, and remarkable in its lateral and compressive strengths. At Pingelly I was shown a fence post which was said to have been nearly 50 years in the ground; and Mr. Warburton, of Yeriminup, gave me a piece of white gum which he said had been in the ground as a fence post for over 40 years; this appeared to be in a perfectly sound condition. For naves, cart and buggy shafts, spokes, felloes, and other rural purposes, it is frequently used, and I think for railway truck construction, receiving buffers, and other works requiring resisting strength it is of great importance, and will eventually vie with, if not surpass, the Tuart timber for these purposes. I look upon it as a timber highly suitable for mining work. It weighs over 70lbs. per cubic foot, even after it has been seasoned for a considerable time.

York Gum.

(*Eucalyptus loxophleba*).

The specific name given to this tree bears reference to the oblique veins of the leaves. It seems to be scattered, in a more or less degree, all over the country occupied by the Wandoo, that is the Eastern slopes of the Darling Range, and occupies a distinct tract of country some miles in width, extending from North of Bejoording, running Southwards through Northam, York, Beverley, Pingelly, Bannister, and Ettakup, and thence bearing South-East to the Pallinup River. The bark of this species is rough, dark coloured, and persistent, and easily distinguishable from the Wandoo by its dark, rugged appearance; otherwise the two trees have a resemblance in growth, habit, and general surroundings. In height, the York Gum rarely exceeds 100ft., and a diameter at base of 3ft.;

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more generally it is about 70ft. to 80ft. in height and 18in. in diameter. It appears to grow in any kind of soil, but certainly has a preference for the richer and loamy deposits found along the depressions and watercourses of the country. The wood is exceedingly hard, heavy, and tough, and it is considered one of the best in the State for the construction of naves, felloes, and general wheelwright work. This being the case, its usefulness might be extended to works where toughness and general strength are required. It is reddish in colour.

Mallee

(*Eucalyptus oleosa*).

There is not much to say about this member of our forests. It is found ranging in different parts of the inland scrubs of Australia. I have seen it in South Australia, Victoria, and New South Wales, but always only about 20ft. to 30ft. in height, and with proportionate girth of stems.

Crimson Flowering Gum

(*Eucalyptus ficifolia*).

This is referred to not because of its value as a timber tree, but simply as a gorgeous and remarkable specimen of the forest flowering-trees of Western Australia. It is a very handsome, branchy, and umbrageous, small tree; its foliage is dark shining green, with the leaves standing out more flat, and not edgeways, as is usual with the eucalyptus family generally. The specimens which I saw ranged from 20ft. to 40ft. in height, with stems averaging about a foot in diameter. The bark is rough, and somewhat like the red gum; the wood is a dark blood-like colour. These trees had their branches sweeping down to the ground amongst the ferns. Elevation of the site above the sea about 100ft.

Flooded Gum of the Interior

(*Eucalyptus rostrata*).

This, perhaps, is one of the most widely distributed Eucalypts on the Australian Continent. Having now seen it here, I can affirm its being indigenous to all the States of the Commonwealth, but perhaps under different physical circumstances in each territorial division of the country. In South Australia and Victoria no tree has, perhaps, supplied more material for railways, bridges, jetties, piles, and telegraph poles than this has done. In those States it is the principal timber tree, and, although it has not—through want only of convenience of land carriage—been much used in the public works of New South Wales, the forests of it along the Murray, Darling, Murrumbidgee, and other rivers in that State are second to none on the Continent. This, I consider, is the true Red Gum of Australia, and no tree is better known to our explorers than it. Nearly all of the land marks, and camp locations and "signs," left by these intrepid adventurers, have been recorded upon trees of this species. The tree appears to crop up here and there along the watercourses

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of the interior of Australia, but of course there only as a fringe, and in a stunted, branchy, and gnarled form. In those portions of this State through which I have travelled, the localities upon which the species was found invariably indicated the courses of the creeks and those low-lying parts of the country where claypans exist, and the storm-waters had accumulated and lain for some time. The bark of the tree is smooth, white, and deciduous each year. The wood is red in colour, weighs about 60lbs. per cubic foot, is admirably adapted for constructive works of all kinds, and resists the white ant and teredo as well as most timbers. In this State the tree is only found in such situations as those indicated, and, I understand, is not met with farther South than the Murchison River. I do not consider it as one of the commercial timber trees of Western Australia, and therefore dismiss it with this short notice.

Yate Gum

(*Eucalyptus cornuta*).

This is not a very numerous member of our forests, but it still occupies a not inconsiderable place in the list of our valuable timbers. I have found the species here and there all over the Southern portion of the State, but always in small patches only. It seems to prefer, and delight in, the low-lying parts of the country where the soil is deep and fairly moist, such as along lake banks, claypans, and river depressions. There are some good specimens of the tree about "Lake Muir" and in the country lying between that and "Forrest Hill." In the hollows of the Wandoo country it is frequently met with. The bark is persistent, dark, rough, and rugged at bottom, but deciduous at top, leaving the branches white, like the Karri. The species is not, as a rule, a very large tree, but I have seen specimens 3ft. to 4ft. in diameter, and 40ft. to the first branch, the extreme height being about 80ft. In South Australia I experimented considerably with the tree, and found it easily raised from seed, a fast grower, a hardy species to deal with generally, and readily adapting itself to situations with an annual rainfall ranging from 15in. to 20in. In this tree we possess a most excellent timber, and one highly suited and used for shafts, spokes, naves, felloes, boat ribs, and agricultural implements generally. It is well worthy of cultivation.

Morrell Gum

(*Eucalyptus longicornis*).

A tree 50ft. to 60ft. in height, and from 12in. to 18in. in diameter. It seems to prefer a loamy soil, and to be partial to soils of any kind which are good, strong, and have some body. The timber is hard, heavy, very strong in every way, especially in its lateral tension, and is of a dark reddish colour. For such works as general wheel manufacture, shafts, blocks, tool handles, mallets, and others requiring timber of a tough, strong, durable character, the Morrell timber is highly recommended. The leaves are especially rich in oil, the extraction of which would form an extremely profitable industry.

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Red Flowering Mallee

(*Eucalyptus pyriformis*).

In my "Forest Flora of South Australia," this small tree, or shrub, is fully dealt with, described, and illustrated. The species is practically a Mallee only, and is here referred to purely on account of the beauty and striking character of its flowers. These are large, spreading, and red in colour, and wonderfully handsome. So far as I am aware, it is only found in a dwarfed form in the interior upon the South Australian border. The calyx, or seed vessel, is unusually large and angular, and these characteristics formed the basis for the specific name.

Blackbutt

(*Eucalyptus patens*).

This tree is confined to its habitat to the South-Western portion of the State, and there only to the gullies and richer parts of it. It is specially abundant at Balbarup, Dingup, and along the Blackwood River, especially from Bridgetown down to the Lower Blackwood. In the Blackwood gorge proper, the tree predominates above all others, and there grows to a large size.

As regards the timber, it is light in colour, hard, tough, and durable, and is used locally for such purposes as the construction of wheels, shafts, and farming implements generally. It is certainly a good timber as a whole, and is gradually taking a place in our local timber market. It appears to last well underground. An instance of this was shown me at Dingup, where slabs of the timber were used 20 years ago in the construction of a cattle yard, and these were quite sound when I saw them, with the exception of a little decay between wind and water. Another instance of its durability came under my observation at Deeside, where Mr. Muir showed me fence posts of the wood which had been in the ground for 50 years. Of course, as this tree is only found growing upon what may be described as the best land in the State, it is bound in time, as settlement develops, to become practically exterminated, or at least so far as to make it unavailable for marketable purposes to any appreciable extent. It is very difficult to split or burn, and hence is not looked upon with much favour by the settler, although always indicating rich soil. It is often to be met with 140ft. in height and 4ft. to 7ft. in diameter. The bark is persistent, hard, deeply fissured, and dark grey in colour.

Blue Gum.

(*Eucalyptus megacarpa*).

This is neither an important nor a numerous tree in the State, and is therefore only referred to briefly here I have seen it occasionally during my trip, but not very often. It occurs in small patches about Karridale, the Vasse, Mount Barker, on the Tone and Gordon Rivers, and on the sandalwood track between Bunbury and the Williams. The species is a fairly sized tree of about 70ft. in

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height, and from 1ft. to 3ft. in diameter, with a smoooth, white, deciduous bark. The settlers do not use the wood for any particular purpose.

Flooded Gums of the South-West

(*Eucalyptus rudis and E. decipiens*).

These are not of any marketable importance. They inhabit the low-lying flats and banks of the rivers between the Swan and the Blackwood, and are sometimes to be met with East of the Great Southern Railway. The timber of both is inferior, and altogether the trees have little or no commercial value.

Salmon-Barked Gum

(*Eucalyptus salmonophloia*).

A tree ranging from 40ft. to 70ft. in height, and 12in. to 30in. in diameter. Its name refers to the colour of the bark, which is of a reddish burnt appearance, fairly smooth, and somewhat persistent. The principal home of the tree is Eastward of the Darling Range, from the upper reaches of the Swan to the dry inland districts of the goldfields, and is found intermixed with the Morrell and Gimlet Gums. It is a common tree East of Newcastle, Northam, York, and along the Yilgarn, Midland, and Great Southern Railways. Along the Midland Railway the trees are of a fair size, and in several cases there the timber has been used with great success in the construction of bridges and culverts. The species prefers a good stiff loamy soil on top with a clay sub-soil. The timber is hard, heavy, and durable, and is used upon the goldfields for mining purposes.

Gimlet Gum

(*Eucalyptus salubris*).

This is intimately associated with the Salmon-Barked Gum, and the two together often form considerable areas of forest country. The name is derived from the strongly fluted or longitudinally twisted character of the outer surface of the stem of the tree. It is very peculiar in appearance, and is a unique and special feature of the species. It seems to prefer good retentive soils, and its chief habitat is in the dry country East of the Darling Range. It is a common member of the forests East of the Meckering Agricultural Area, and in the country lying along the route of the Yilgarn Railway, from which it spreads out North and South. There are patches of the tree at Carnamah, on the Midland Railway. With the Salmon-Barked Gum, it is found beyond the Coolgardie Goldfields. The timber is much of the same class as that of the Salmon-Barked Gum, and is in general use upon the goldfields.

Native Pine

(*Frenela verrucosa*).

These trees seem to crop up here and there in various parts of the State, but chiefly in the sandy and poorer portions of it. Of the various members of the family, the one in my list is the most important and the most widely distributed here, as well as all over the Continent of Australia. The timber of this species is of splendid

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grain, not readily, if at all, attacked by white ants, is hard, light in colour, has an agreeable scent, and weighs about 40lbs. per cubic foot. For house-building, where white ants are numerous, it is particularly well suited, as was found by the South Australian Government in the construction of the stations and other buildings along the route of the Port Darwin and Pine Creek Railway. It is also suitable for furniture-making, yokes, boat knees, walking-sticks, door panels, wainscoting, and picture frames.

I have not seen it in the humid districts of the South-West, but on the Eastern sand plains and elsewhere in similarly dry and partially arid country it forms considerable belts.

Paper Barks

(*Melaleuca Leucadendron*).

A passing notice is all I can devote to these trees. There are several kinds in the State, and these are always met with in swamps, on river banks, and in the moist alluvial flats bordering the rivers, and all chiefly upon the sea-coast. The bark, with its numerous layers of a paper-like consistency, is a marked peculiarity of the tree, and for packing fruit for export should be well suited. The timber is hard, durable, cross-grained, lasts well underground, and resists the white ants. It is not much used here, but is available for ship-building, posts, short piles, and fencing.

According to detailed inspection by me, the areas occupied by the respective principal trees of Western Australia are as follows:—

	Acres.
Jarrah (with Blackbutt and Red Gum) ...	8,000,000
Karri	1,200,000
Tuart	200,000
Wandoo	7,000,000
York Gum, Yate, Sandalwood, and Jam ...	4,000,000
Total area of the principal Forest surface of Western Australia	**20,400,000**

As to the estimated quantities and values of the matured marketable timbers now standing in the forests of Western Australia, I must speak with a considerable amount of diffidence; not diffidence in exactly the literal meaning of the word, but rather with a certain feeling of caution and hesitancy in approaching such a comprehensive and important matter. However, whatever be the general verdict upon my figures and deductions, I am assured in my own mind that they are fairly correct and may be accepted as a reliable approximation of what they purport to be. I desire it to be distinctly understood that the estimate of quantities has reference only to those large trees which are at the present time sufficiently matured to be available for sawmill purposes, and which are at that stage of growth when they should be removed in order to make room for the development of the young crop coming on. In no sense, therefore, do these figures refer in any way to the permanent value of the forests, but only to the crop of trees which is now

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available for utilisation. I have based my calculations in thi section upon what I consider the trees contain of round timbe suitable for the mill. There is no doubt that our timbers must a present be cut to suit market requirements, without reference to a consideration of the proper and most profitable utilisation of th timber. This is one of the disadvantages attending the presen market for our timber, but it is one which will, no doubt, gradually remedy itself.

To give an idea of the waste, unavoidably as well as carelessly, which goes on, I should think that something like two-thirds only of the timber in the trees are utilised. It therefore follows that th realised output from the sawmills of marketable stuff is not s much as it would be were we in a position to command a marke for general timber merchandise.

With these few preliminary remarks, I now submit the follow ing as my estimate of the matured timber at present growing in th forests situated upon the Crown Lands of the State:—

	Loads.
Jarrah	40,000,000
Karri	15,000,000
Tuart	300,000
Wandoo, York Gum, Yate, Blackbutt ...	7,000,000
Estimated total loads of round matured timber now in the Forests of Western Australia	62,300,000

This immense quantity is, I believe, considerably under wh actually exists. I think that we may safely look upon this timb as worth to the country 60s. per load; this representing the avera amount which is retained in the State for wages, haulage, trainag loading on board ship, and profit now obtained by those employe in the trade.

Such being the case, we find that the marketable timber no growing in the forests of Western Australia is worth, deductin one-third for waste in sawing, no less a sum than, in roun numbers, £124,000,000. No estimate is here made of the R Gum.

In taking a glance at the prospective value of the Weste Australian forests, this must be gratifying to all concerned, and certainly encouraging to those who will have the privilege a honour of instituting such a complete modern system of forestry; the State as will entitle these forests to be recognised as one of t most important and reliable resources of the country. It is ea of course, to make a statement of this kind, but to carry out such system successfully will be found to be a work fraught with difficu ties, vexations, and disappointments. Yet I maintain that all the can be, and ought to be, overcome in the interests of the count generally. It only wants a wise administrative power and a stro Government to bring about what is here indicated. The value these extensive Jarrah and Karri forests is now beginning to

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recognised; they are not now looked upon as a nuisance and hindrance to settlement, as they were some years ago. The progress of events has entirely changed the aspect of the timber question, and where years ago forest areas could be obtained for almost nothing, these are now eagerly sought after at fair prices. The individual who possesses a bit of good forest land may consider himself fortunate in having this capital at his back. A beginning only has yet been made in what may be described as the timber industry, but even the operations now going on in the forests give us an idea as to what magnitude they will assume if fostered and encouraged.

We have seen that there are something like 60,000,000 loads of matured timber now in our forests. This timber is ripe and should be removed to make way for succeeding crops. It will take many generations to cut out the Karri and Jarrah timber which is now at our disposal.

I think I am considerably within the mark when I state that the forests of this State are capable of supporting, and keeping in full working order, a mill power and staff at least five times as large as what we now possess.

7.—CLIMATE.

(Particulars supplied by the Government Astronomer.)

The Climate of Perth and the South-West and South Coastal Districts.

This district may be roughly considered as bounded by the coast-line and by a straight line drawn from Geraldton to Esperance. In taking Perth as representing the whole, the following exceptions should be considered:—

The rainfall is heaviest in the extreme South-West, diminishing thence both Northward and Eastward. It also falls off from the coast or coastal ranges in all directions inland.

The summer is very much cooler on the Coast between Bunbury and Albany than elsewhere.

The sea-breeze, which makes ordinary hot days bearable in Perth and coastal districts generally, is not felt very far inland. With these exceptions, then, we may consider the climate of Perth as representative of the South-West district.

Perth Climate.

Just as there are two distinct types of weather, so are there two distinct seasons—the winter and the summer. The former sets

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in, as a rule, rather abruptly, and the dates of the first heavy winter rains in each year may be taken to be as follows :—

FIRST HEAVY WINTER RAINS.

Year.	Winter started.	First heavy rains.	Points.	Remarks.
1880	May 15 ...	May 26 ...	155	Thunderstorm on April 29, with 115 points.
1881	April 22 ...	May 5 ...	72	
1882	April 17 ...	April 19 ...	110	
1883	May 11 ...	May 21 ...	116	Thunderstorm on April 18, with 218 points.
1884	April 29 ...	May 27 ...	126	Perfectly clear 7 to 25 May.
1885	May 9 ...	May 9 ...	98	
1886	May 14 ...	May 15-17 ...	190	4 days' rain, then fine for 3 weeks. A
1887	April 24 ...	April 25 ...	62	lot of fine weather in May and June.
		April 30 ...	90	
1888	April 30 ...	May 1-2 ...	155	Preceded by scattered rains.
1889	May 7 ...	May 8-10 ...	184	Heavy rain April 19-21 (253); thunderstorm April 29.
1890	May 4 ...	May 8 ...	76	
1891	May 2 ...	May 11 ...	115	
1892	April 12 ...	May 23 ...	98	
1893	April 2 ...	April 4 ...	70	Thunderstorm early in March.
1894	May 10 ...	May 14 ...	61	
1895	May 26 ...	May 27 ...	101	Scattered rain throughout April.
1896	April 29 ...	May 8 ...	130	Fine from 10 to 22 May.
1897	May 7 ...	May 14 ...	176	
1898	May 12 ...	May 28 ...	128	
1899	April 12 ...	April 19-22...	205	
1900	April 24 ...	May 3-4 ...	146	
1901	April 30 ...	May 1 ...	194	
1902	May 20 ...	May 24 ...	105	
1903	April 9 ...	April 15 ...	66	

From May to the end of October may be considered the winter months, and the weather during that time is dominated by the passage of the "highs" and "lows." The average rainfall for each month is as follows :—

May	476	August	571
June	654	September	320
July	604	October	205

These figures might convey the impression that Perth is a very wet place during the winter, but the reverse is the fact. One of the wettest days that have occurred was 15th June, 1900, and on that occasion the following remarks on the rainfall of Perth, and the manner in which it falls, were communicated to the daily Press by the Government Astronomer :—

Last Friday (June 15th) was probably one of the wettest days that Perth has ever experienced. The winter rain here generally consists of a series of heavy showers interspersed with fairly long intervals of fine weather. On this occasion, however, there were 9 hours 20 minutes of actual rainfall between 9 a.m. on Friday and 3 a.m. on Saturday, and the total amount registered on Saturday at 9 a.m. for the preceding 24 hours was 265 points. This constitutes a record as far as the Observatory is concerned, and the amount recorded at the Botanical Gardens—viz., 271 points—has only twice been exceeded since the records commenced in 1876. The two exceptions were in July, 1891, when 3 inches fell, and in May, 1879, when 289 points were registered. The actual number of rainy hours during one day

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has been exceeded only once since pluviometer records commenced in April, 1897. Between last Friday and Saturday mornings at 9 o'clock it was actually raining for 10 hours 12 minutes, and during the day ending 9 a.m., September 30th, 1897, there were 12 hours 48 minutes of actual rainfall; but the total quantity then was only 60 points, and most of this fell during the night. This morning (Sunday) 72 points, and this evening at 6 p.m. 80 points, were registered, making a total of 4 inches and 17 points between Friday morning and Sunday evening. The amount so far recorded for this month is 731 points, or nearly an inch in excess of the average for the whole month for previous years. The greatest quantity ever registered in Perth for the month of June was 12·11 inches in 1890.

Owing to this tendency for the rain to fall principally in heavy showers and at night, and to the sandy nature of the soil, which rapidly absorbs it, the general impression of the Perth winter is that of a succession of fine, bright, calm days, varied occasionally by a severe but brief storm. The weather is, on the whole, delightful, but it may perhaps be too mild. One misses the keen frosty feeling that is experienced in other places, and its absence probably justifies to some extent the popular statement that the climate is enervating.

At night it is frequently cold, July, however, showing an average of five nights during which the minimum thermometer in the screen registers below 40 degrees. (As this description of Perth is to be taken as representing more or less the whole of the South-West district, it must be stated that severe frosts are by no means uncommon inland. The coldest parts of the State at night are Southern Cross and Katanning, and here the thermometer frequently falls below 32 degrees, especially if exposed to radiation. The mean minimum in the Stevenson screen for July is 38·7 at Southern Cross and 40·0 at Katanning.)

Very severe floods have been occasionally experienced at Perth and elsewhere in the past, but there has been an almost entire absence of these for a long time, in fact during all the years that systematic records have now been kept no great floods have occurred.

The summer does not set in quite so abruptly as the winter. With an occasional hot day in October, it commences generally in November, but does not, as a rule, become really noticeable until after Christmas. Taking a temperature of 90 degrees in the shade as the criterion of a hot day, we find an average of less than 1 in October, 3 in November, 7 in December, 11 in January, 11 in February, 8 in March, and 2 in April. This number (43 in all) seems rather formidable, but the heat is not, as a rule, felt oppressively on account of the short portion of the day during which it lasts on each occasion. On a normal hot summer day a sea breeze always sets in about noon on the coast, and reaches Perth about 2 p.m. The temperature then commences to fall, and the evening and night are delightfully cool and pleasant. Occasionally a protracted spell of hot weather is experienced, but even then the nights are generally cool. The longest of these spells without a break occurred in 1896, when the maximum exceeded 90 degrees on every date between January 25th and February 12th—19 in all. But the most severe heat was apparently in January and February, 1880. The highest reading that has so far been recorded in Perth is 116·7 which occurred in January, 1878.

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Notwithstanding the fact that the monthly means are, as a rule, higher than those for the principal cities in South Australia, Victoria, and New South Wales, and that we are in a lower latitude than any of these, the same remark may be applied to the summer climate as to the winter. It appears to be milder than the others. One notices the absence here of those violent changes which are sometimes experienced in the other States. When a cool change comes after a spell of hot weather it seems to steal upon the land gradually. The appearance of soft, watery cumulus clouds in the West, generally about sunset, announces the arrival of the welcome change. That evening will be cooler than the preceding ones, but not remarkably so, and next day it may be more or less cloudy, but only moderately cool. At night probably a few light showers, and we realise that a definite change has occurred. Whether or not the sudden changes experienced elsewhere act as a tonic it is difficult to say, but, at all events, they rarely if ever occur in Perth.

A curious instance of uniformity is afforded by the figures showing the average summer temperatures since 1876. One frequently hears the expression "A remarkably cool summer," or "A terribly hot summer," "A real scorcher," etc., yet we find that although the means for the individual months may vary considerably, those for the summer (November to March) diverge but little from the general average. It must be remembered, in studying the following figures, that the thermometers were transferred from one locality to another in August, 1885, and therefore the two periods (1876-1885 and 1886-1903) must be studied separately. So uniform, on the whole, are the figures, and so distinct the break (amounting to 2·1°), that by means of it the Government Astronomer was able to ascertain the change in the method of exposure. The following are the mean summer maximum day temperatures, that opposite 1876 being for the period November, 1876, to March, 1877, etc.:—

Summer—November to March.	Mean Max. Day Temp.	Divergence from Average.	Summer—November to March.	Mean Max. Day Temp.	Divergence from Average.
1876 ...	84·5°	−1·5°	1886 ...	82·1°	−1·8°
1877 .	87·6°	+1·6°	1887 ...	85·1°	+1·2°
1878 ..	86·6°	+0·6°	1888 ...	83·2°	−0·7°
1879 ..	86·2°	+0·2°	1889 ...	83·0°	+0·9°
1880 ...	86·5°	+0·5°	1890 ...	83·6°	−0·3°
1881 ...	86·4°	+0·4°	1891 ...	84·6°	+0·7°
1882 ...	84·8°	−1·2°	1892 ...	84·2°	+0·3°
1883 ...	85·8°	−0·2°	1893 ...	83·1°	−0·8°
1884 ...	84·6°	−1·4°	1894 ...	83·8°	−0·1°
1885 ...	87·0°	+1·0°	1895 ...	85·5°	+1·6°
			1896 ...	83·6°	−0·3°
			1897 ...	84·8°	+0·9°
			1898 ...	83·8°	−0·1°
			1899 ...	83·7°	−0·2°
			1900 ...	84·9°	+1·0°
			1901 ...	83·9°	0·0°
			1902 ...	82·6°	−1·3°
			1903 ...	83·7°	−0·2°
Mean for this period	86·0°		Mean for this period	83·9°	

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Climate within the Tropics.

A lengthy description of this is unnecessary; and, unfortunately, our knowledge is derived mainly from coastal stations The year may be divided into two seasons—wet and dry—the former lasting from the middle or the end of November to the end of March. During this period the weather is very unpleasant, the maximum temperature every day being close to or above 100°. Records of 110° are by no means infrequent, and the thermometer has even reached 120°, the highest reading ever registered in the State being 123° at Onslow, in February, 1896. As an illustration of the extreme heat to which this region is sometimes subject, the following figures for the summer of 1895-96 will doubtless prove interesting:—

Mean monthly maximum temperature at Onslow:

October, 1895	100·5deg.
November „	101·3 „
December „	106·1 „
January, 1896	103·0 „
February „	105·9 „
March „	104·0 „
April „	99·6 „

Daily maximum temperature at Onslow during two very hot periods:

1895.			1896.		
December	2	102deg.	February	9	101deg.
„	3	109 „	„	10	111 „
„	4	113 „	„	11	112 „
„	5	111 „	„	12	114 „
„	6	108 „	„	13	117 „
„	7	106 „	„	14	116 „
„	8	109 „	„	15	121 „
„	9	106 „	„	16	123 „
„	10	109 „	„	17	116 „
„	11	109 „	„	18	112 „
„	12	111 „	„	19	110 „
„	13	115 „	„	20	108 „
„	14	112 „	„	21	101 „
„	15	110 „	„	22	99 „
„	16	115 „	„	23	116 „
„	17	111 „	„	24	101 „
„	18	99 „	„	25	100 „
„	19	112 „			
„	20	121 „			
„	21	104 „			

This is, of course, an extreme case, but one can now understand that occasionally a press telegram from these very hot districts has appeared in the daily papers to the following effect:—"A delightful cool change has set in; the shade temperature has dropped to below 100deg."

Thunderstorms, accompanied by heavy rain, are frequently experienced, and it is during this season that the willy-willy occasionally visits the N.W. coast. A moderate rainfall can

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generally be relied upon down to about latitude 20deg.; but South of that it is uncertain. Sometimes it will be very heavy, and at other times hardly a drop will fall. The heaviest ever recorded was 36·49 inches at Whim Creek, near Cossack, on April 2-3, 1898.

The most severe drought occurred between June, 1890, and January, 1892, during the whole of which period (20 months) only 73 points of rain were recorded as the mean for the Cossack district.

In the winter months, or dry season, the climate is considered by the inhabitants to be most enjoyable. An occasional wet day is experienced, but the weather is for the most part fine, clear, calm, and pleasant.

Climate of the Interior.

It is only within the last few years that any meteorological records have been obtainable from the interior districts of the State, and upon these it is hazardous to found a very definite opinion as to the climate. Up to the end of 1899, for instance, the possible occurrence of such a succession of wet stormy days as were actually experienced in 1900 would scarcely be credited.

The climate is a mixture of the two already described. Sometimes the tropical rains come across; sometimes the winter storms of the South-West and Southern districts extend well inland, and sometimes both sources of rain fail, and a drought ensues. In the summer it is a climate to be endured as patiently as possible. On the Coolgardie goldfields the heat waves are varied by the cool changes which pass from West to East along the South coast; but from the Murchison, Northwards, the heat is very disagreeable indeed, whilst the inhabitants as a rule find all the recognised languages quite inadequate for a description of the flies and dust.

As a kind of compensation, the winter season is delightful. Very little rain falls, and the weather is cold, clear, and bracing.

All through the summer occasional thunderstorms may be looked for, and it sometimes happens, as already described, that monsoonal rains come right through this district from the North-West to South-East. The most severe and continuous of which we have any record occurred in March and April, 1900, but geological signs seem to indicate that heavy floods have occurred in past years. The following brief description was written at the end of April, and was supplemented later by a table showing daily rainfall throughout April at selected stations. The description is here reproduced, and also the table, but somewhat further curtailed:—

This month will long be remembered as the month of the great floods. These have been so severe that telegraph lines are interrupted all North of Geraldton, and the postal service in the interior is completely demoralised. The extensive dry plains are now converted into inland seas or lakes, and the rivers have become raging torrents. Peak Hill and Lake Way Stations, situated in the great inland desert, are completely cut off from all food supplies, and it is proposed to shortly hold a regatta at the latter place,

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where a boat can now sail a course of 70 miles. It will be easily understood that our reports are but few, and, therefore, we are unavoidably obliged to postpone a full account of the rainfall until later. It was of a monsoonal character, and travelled from the North-West coast, in a more or less South-Easterly direction, towards the head of the Great Australian Bight. It may be said to have first set in on the 2nd of March, a detailed account of a heavy storm being given in last month's notes. After the main storm passed away, the weather continued unsettled, with occasional showers throughout the remainder of the month. Rain recommenced in earnest on the 1st of April, and from then till the 20th a dense cloud-bank enveloped nearly the whole of Western Australia, and the rain was almost incessant. We have, unfortunately, but scanty records from which to make a comparison with past years, but, from all that can be gathered, the present fall has been the heaviest, most general, and most persistent ever known; and no man living has ever seen the country flooded to the same extent. The barometric conditions accompanying the rainfall were as follows:—Although the weather was cloudy and showery throughout the first 20 days of the month, there were three periods of maximum intensity—viz., on the 2nd to 4th, 10th to 12th, and 15th to 17th. During each of these periods a "high" was traversing the South coast from West to East, with falling gradients thence towards the North-West coast. In the first period a "low" made its way down the West coast from tropical latitudes to the neighbourhood of Geraldton, when it passed inland and travelled across to the Bight. It was of no great intensity, and all the heavy rain preceded it. In the second period there were again signs of a "low" out to sea off the North-West Cape, but this never developed. During the third period (15th to 17th) a "low" apparently passed rapidly across from the North-West Cape to the Bight; but, in this case, again, the fall in the barometers was inconsiderable. During nearly the whole 20 days the winds throughout the Colony were from the Eastward, but there can be little doubt that all the rain came from the North-West, although the country observers were not sufficiently versed in cloud observations to make this point certain. The cloud area just escaped Perth, and we were able to see the edge of it, day after day, peeping over the Darling Ranges. The weather here was mostly fine, but unpleasant, with strong Easterly winds, and only a few points of rain. On the 23rd the character of the weather showed signs of a complete change. Our remarks on the map for that morning stated:—

> "To-day's weather reports appear to indicate that the character of the season is abruptly changing from summer to winter. There are now signs of the first winter type of "low" approaching the South-West coast, and the monsoonal rains that have been so exceptionally heavy throughout the interior seem to have now ceased."

This was verified later. The barometer fell rapidly to 29·674 at 3 p.m. on the 24th, with a heavy North-West gale. The anemograph recorded a total horizontal motion of 150 miles between 9 a.m. and noon, and 955 miles for the 24 hours ending midnight, 24-5th, this being the greatest total yet registered. At Cape Leeuwin the barometer fell to 29·205 at noon on the 25th, and the total motion of the wind for the 24 hours was 1,165 miles. The usual winter rains accompanied the passage of this disturbance, giving the Coolgardie fields even yet another downpour.

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Daily Rainfall throughout

Stations.	1	2	3	4	5	6	7	8	9	10	11	12	13
Wyndham	5	..	..	..	..	..	..	..	..	..	..	..	..
Hall's Creek ..	..	..	..	..	..	..	..	..	..	..	..	11	..
La Grange Bay	..	2	5	103	58	..	..	..	..	..	..	..	..
Condon	..	..	22	450	5	..	..	..	..	..	..	..	..
Marble Bar ..	10	..	..	91	29	..	..	..	..	..	..	..	..
Cossack	..	..	10	116	115	..	..	..	2	..	..	..	132
Onslow	..	227	95	83	..	..	..	..	69	45	80	62	356
Carnarvon ..	56	125	165	68	..	..	..	.	..	..	105	27	..
Hamelin Pool ..	15	..	10	7	..	..	..	..	..	..	3	1	1
Peak Hill	..	17	176	37	9	..	..	..	3	15	28	203	30
Abbotts	..	52	221	10	54	..	..	..	..	39	116	237	238
Mileura	..	62	258	30	58	..	..	..	..	..	86	136	50
Murgoo	..	14	27	22	..	..	..	..	..	167	8	32	2
Nannine	..	21	130	140	50	..	..	..	..	4	208	160	..
Cue	..	22	58	152	31	..	..	..	..	..	129	39	134
Mt. Magnet ..	..	..	3	93	68	..	10	..	..	..	62	13	..
Challa	..	..	..	..	145	..	..	..	..	..	50	..	..
Yalgoo	..	..	..	80	87	2	..	..	..	..	47	..	4
Northampton ..	..	..	..	38	25	31	..	..	..	..	4	11	12
Geraldton	..	..	..	20	17	2	..	..	..	..	38	..	23
Walebing	..	..	..	..	10	2	..	..	..	..	..	..	1
Perth Observatory	..	..	..	..	1	..	..	..	..	..	..	..	..
Pinjarra	..	..	..	..	20	..	..	..	..	..	..	..	..
York	..	..	..	..	5	4	..	..	..	..	..	..	..
Bunbury	..	..	..	..	..	..	..	..	..	..	..	..	..
Bridgetown ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Katanning ..	..	..	..	..	..	..	..	..	..	2	..	..	..
Albany	2	13	7	24	17	5	1	2	13	..	..	..	5
Lake Way.. ..	..	291	102	55	2	..	..	40	68	159	132	275	..
Lawlers	..	..	24	101	115	3	..	..	..	..	157	56	36
Mt. Malcolm ..	..	..	..	72	38	22	..	..	..	..	22	51	22
Laverton	..	..	..	..	121	162	..	..	..	..	23	68	84
Pendennie.. ..	..	..	..	90	59	16	..	..	6	..	26	26	35
Menzies	..	..	5	7	41	1	..	..	9	..	6	12	99
Goongarrie ..	..	..	..	6	75	8	..	..	..	..	..	3	36
Kurnalpi	..	..	2	2	92	14	3	..	..	..	..	..	..
Kalgoorlie ..	..	..	3	6	61	27	..	..	8	12	..	..	..
Coolgardie ..	..	..	1	9	72	17	1	..	1	..	..	..	..
Widgiemooltha ..	..	..	1	1	98	13	13	..	..	6	..	..	..
Norseman	..	..	..	60	8	8	..	..	4	..	..	..	9
Southern Cross ..	..	..	..	..	23	9	..	..	25	..	..	..	..
Mt. Jackson ..	..	..	..	20	150	8	..	..	..	..	..	..	..
Burracoppin ..	..	..	..	..	15	28	..	..	..	..	..	..	..
Wattoning.. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Coconarup.. ..	..	20	..	..	22	19	..	5	3	4	..	..	16
Esperance	..	..	5	..	20	50	1	6	8	..	..	..	9
Israelite Bay ..	..	..	2	15	67	50	..	..	..	..	..	..	..
Balladonia.. ..	..	..	..	..	88	40	9	5	8	..	..	..	..
Eyre	..	20	..	..	6	5	14	1	3	6	..	..	1

.. Signifies "*nil*." 100 points equal one inch.

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THE STATE FOR APRIL, 1900.

14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Total.
..	..	..	113	..	..	..	..	..	..	..	..	..	..	..	..	..	118
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11
..	..	..	..	..	38	..	..	..	..	..	..	..	..	..	..	..	206
22	80	45	..	..	..	..	..	..	..	..	..	..	..	..	..	..	624
13	130	139	2	..	..	..	..	..	..	..	..	..	..	..	..	..	414
102	689	1,323	17	..	..	..	..	..	..	..	..	..	..	..	..	..	2,506
..	15	21	7	..	..	..	40	..	..	..	..	..	..	..	..	..	1,100
..	..	..	17	..	..	25	49	..	..	3	12	..	..	..	..	..	647
..	..	..	..	..	..	..	..	..	..	..	50	..	..	..	..	..	87
5	6	167	110	..	..	39	125	..	..	..	..	8	8	..	..	2	988
9	19	114	4	..	..	12	75	16	..	..	..	2	..	..	..	..	1,218
..	36	30	..	..	..	..	65	..	..	..	..	..	..	..	..	..	811
60	..	..	..	..	..	..	..	..	..	42	..	..	..	..	..	2	376
25	..	..	..	..	..	18	45	..	..	..	..	..	..	..	..	..	801
..	225	17	..	..	..	14	5	..	..	..	6	..	..	..	..	..	832
..	27	53	..	..	..	2	..	3	27	..	..	..	..	..	..	..	361
60	..	25	..	..	..	10	..	..	..	19	..	..	..	..	..	..	309
..	..	..	..	..	..	..	..	..	..	7	47	..	..	..	..	..	274
..	..	..	..	..	..	..	2	..	..	29	123	..	..	..	..	..	275
..	21	9	..	..	..	..	12	..	..	33	124	1	5	..	..	..	305
..	14	3	..	..	..	..	..	..	..	6	100	13	8	..	..	..	157
..	3	2	..	..	..	..	..	..	..	8	42	50	25	..	..	..	131
..	..	..	..	..	..	..	..	..	..	5	100	65	10	..	..	..	200
..	..	12	5	..	..	..	..	..	..	26	60	14	11	..	..	..	137
..	..	1	..	..	..	..	..	..	..	6	82	90	10	..	..	..	189
..	3	..	1	..	..	..	..	..	..	..	93	114	5	..	..	5	221
..	..	14	5	..	..	..	..	..	..	..	42	30	..	..	..	9	102
10	1	10	4	11	..	..	..	..	..	..	36	72	53	1	..	2	289
72	207	113	..	178	134	244	..	..	..	..	3	..	..	..	..	..	2,075
22	67	107	36	..	..	46	26	..	..	1	2	..	..	..	..	..	799
8	3	80	57	..	8	87	29	..	..	2	..	5	..	..	..	..	506
11	15	71	79	..	..	..	171	..	..	..	..	..	..	..	..	..	805
25	..	50	67	..	..	13	6	..	..	..	..	..	..	..	..	..	419
23	..	31	60	..	..	72	2	..	..	1	..	..	..	..	..	..	325
21	..	16	35	..	..	25	..	..	..	16	..	..	..	..	..	..	241
34	..	16	21	..	..	40	..	13	..	..	10	7	..	..	..	..	244
26	..	22	30	..	..	7	72	3	..	14	52	..	..	..	..	..	343
10	..	24	42	..	..	..	103	5	..	5	66	..	..	..	..	..	356
9	..	33	43	..	..	39	44	25	..	..	34	..	..	..	..	..	359
..	..	28	51	..	..	5	21	..	3	..	43	..	2	..	..	..	242
..	6	85	15	..	..	..	..	..	..	27	70	..	..	..	..	..	260
..	..	71	12	..	..	..	10	..	..	..	52	..	..	..	..	..	323
..	15	88	7	..	..	..	..	..	..	17	103	9	5	..	..	..	287
..	..	..	..	120	..	..	..	..	..	..	..	80	..	..	..	..	200
23	57	98	6	..	..	6	26	11	..	..	62	..	..	4	..	..	382
12	..	1	33	4	..	3	102	10	..	2	84	..	4	6	..	..	390
20	..	3	47	5	..	6	108	..	6	..	23	..	..	..	..	..	352
12	..	..	32	..	..	51	114	7	..	..	12	4	..	..	..	..	382
6	..	..	37	2	..	..	198	40	..	..	..	5	..	22	2	..	368

.. Signifies "*nil*." 100 points equal one inch.

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Monthly Rainfall at Perth (from Records made in the Botanic Gardens from 1876 to 1903).

Year.	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.		Total.	
	Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.	Rainfall.	Days.
RAINFALL (100—1 inch).																										
1876	61	6	4	1	192	4	38	3	263	10	845	19	242	9	382	12	320	8	259	13	171	11	96	4	2873	100
1877	18	3	3	3	...	...	105	7	554	22	216	10	667	18	328	20	69	4	54	11	13	2	21	3	2048	103
1878	16	3	79	5	93	7	278	12	606	14	558	16	943	20	701	22	429	21	102	14	151	7	16	2	3972	143
1879	217	2	15	1	51	4	202	2	1213	14	656	15	556	13	535	16	213	12	350	13	62	9	64	5	4134	106
1880	28	5	72	4	114	6	332	12	334	13	717	16	375	10	628	17	254	14	104	9	212	7	9	3	3179	116
1881	113	4	2	1	112	4	113	5	431	15	535	13	550	15	108	11	268	13	52	5	130	7	64	8	2478	101
1882	15	4	3	1	90	6	497	15	273	13	494	11	852	18	1033	22	106	9	86	5	109	3	10	2	3568	109
1883	10	2	230	8	64	3	269	6	477	15	1181	23	512	18	554	14	207	10	196	8	118	6	147	9	3965	122
1884	51	1	25	2	...	...	104	6	283	7	857	19	365	9	822	17	236	14	293	9	75	4	85	4	3196	92
1885	41	2	...	...	88	2	294	8	869	18	506	17	529	18	559	25	138	7	156	6	84	4	80	3	3344	110
1886	12	2	62	1	...	...	69	3	277	7	422	10	621	17	706	21	551	18	71	5	99	5	...	...	2890	89
1887	19	3	95	2	119	5	234	7	362	7	582	13	1026	20	684	15	357	16	151	8	89	6	34	3	3752	105
1888	...	...	1	1	68	3	172	10	402	15	487	18	323	17	569	14	208	11	111	12	137	10	305	6	2783	117
1889	82	3	42	2	67	4	399	8	827	15	983	20	302	16	364	16	313	14	472	14	124	8	21	3	3996	123
1890	2	2	56	3	2	1	5	1	796	17	1211	19	391	14	593	21	601	20	787	21	44	2	185	5	4673	126
1891	4	1	...	...	86	6	19	4	732	15	628	17	712	12	313	14	458	14	66	7	...	...	15	3	3033	93
1892	12	5	19	1	41	8	131	7	478	12	528	14	565	19	975	25	220	14	49	5	97	7	8	5	3123	122
1893	4	2	67	6	171	8	363	13	768	19	322	9	882	21	439	17	530	19	303	18	59	8	104	5	4012	145
1894	...	...	38	2	33	7	5	2	333	8	435	21	495	13	385	16	332	15	148	11	21	3	147	5	2372	103
1895	21	1	108	7	8	3	151	8	156	9	844	14	683	19	654	24	468	20	108	9	13	2	87	7	3301	123
1896	10	2	...	...	450	8	94	6	363	14	722	17	852	14	371	14	108	10	98	10	23	3	59	5	3150	103
1897	...	...	29	4	143	2	148	6	312	13	570	18	419	14	543	16	322	13	109	6	116	7	14	2	2725	101
1898	49	1	36	2	14	2	46	3	349	9	619	15	567	16	870	16	213	17	354	21	76	6	11	1	3204	109
1899	17	1	37	4	12	4	332	12	225	9	621	17	710	13	560	14	180	9	432	15	58	4	12	2	3196	104
1900	117	5	3	1	24	2	130	5	291	7	1121	23	536	16	786	26	252	11	271	15	38	3	56	2	3625	116
1901	11	2	1	1	149	7	48	5	751	16	704	19	801	12	590	17	263	15	164	12	44	5	58	7	3584	118
1902	4	2	10	2	7	1	19	2	475	17	357	10	995	19	48	3	555	17	147	11	9	3	26	2	2652	89
1903	2	1	...	...	28	7	268	17	115	12	596	18	449	18	881	17	798	21	249	18	104	5	55	5	3545	139
Mean for 28 years	33	2	37	2	80	4	174	7	476	13	654	16	604	16	571	17	320	14	205	11	81	5	64	4	3299	111

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Mean Maximum Day Temperatures at the Chief Observing Stations in Western Australia during 1902.

Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
Wyndham	92.9	95.7	97.8	97.4	92.5	90.1	87.0	88.7	92.6	96.6	96.0	98.0	93.9
Derby	95.0	93.3	99.3	97.6	91.5	88.3	87.9	91.8	94.1	97.8	96.5	99.1	94.4
Broome	91.2	89.8	93.8	94.9	89.7	83.9	83.4	87.7	88.2	90.1	93.5	92.2	89.9
Condon	91.7	93.2	96.7	94.4	83.0	79.3	79.7	81.8	87.6	91.5	95.0	92.7	88.9
Cossack	93.6	97.5	99.6	94.3	83.2	77.8	77.6	80.4	88.1	91.0	96.5	94.4	89.5
Onslow	92.0	97.7	100.8	93.6	83.6	78.8	77.3	79.6	84.0	89.9	92.7	91.8	88.5
Carnarvon	84.9	84.9	90.6	86.5	79.1	73.7	71.6	74.3	74.2	77.4	82.5	83.9	80.3
Hamelin Pool	94.3	94.9	98.7	92.1	75.7	71.1	69.3	74.4	74.7	82.3	88.6	94.4	84.2
Geraldton	79.9	79.4	86.4	78.0	74.2	69.8	67.6	71.9	71.5	71.6	77.7	77.2	75.4
Hall's Creek	97.4	95.9	97.1	92.7	86.4	81.4	81.0	86.2	93.0	99.1	98.5	101.1	92.5
Marble Bar	100.3	99.7	106.9	98.8	87.7	81.4	81.4	86.2	94.0	98.4	104.3	106.9	95.5
Nullagine	96.8	96.8	103.0	94.0	83.3	76.3	76.0	80.7	88.8	93.8	99.4	102.9	91.0
Peak Hill	92.8	91.8	96.7	88.6	72.1	66.7	66.4	71.6	78.2	84.6	91.9	97.0	83.2
Wiluna	92.1	92.4	95.7	88.1	74.0	65.4	65.6	69.2	78.2	84.6	90.9	96.4	82.7
Cue	94.7	94.8	98.6	91.5	74.3	68.6	65.8	72.1	76.4	83.6	91.5	96.4	84.0
Yalgoo	94.2	92.9	97.0	90.0	73.7	67.7	64.5	71.4	74.2	81.3	89.0	94.4	82.5
Lawlers	91.2	91.9	94.0	87.8	72.2	63.9	64.3	68.7	75.7	83.0	88.9	93.8	81.3
Laverton	90.9	92.5	92.7	86.4	72.4	64.4	62.7	67.4	75.3	82.7	89.1	93.1	80.8
Menzies	90.3	89.8	90.8	85.5	69.7	62.8	61.7	65.9	73.3	79.8	86.4	90.9	78.9
Kalgoorlie	88.7	88.3	89.7	85.7	69.5	62.7	61.4	66.4	72.1	78.6	84.6	89.4	78.1
Coolgardie	88.4	89.2	89.5	85.2	69.6	62.1	60.9	66.7	71.4	77.3	84.0	89.4	77.8
Southern Cross.. ..	91.6	90.1	92.0	86.2	71.2	63.8	60.8	67.1	72.0	78.4	86.3	90.9	79.2
Walebing	89.3	88.2	92.3	83.6	70.0	63.7	61.8	68.1	67.5	73.7	82.4	84.5	77.1

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Mean Maximum Day Temperatures at the Chief Observing Stations in Western Australia during 1902—continued.

Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
Northam	90.8	89.5	92.9	83.5	70.9	64.5	61.1	68.9	68.7	74.6	84.0	85.6	77.9
York	90.1	88.2	91.8	82.6	70.4	63.6	60.8	67.8	68.7	73.6	83.3	84.5	77.1
Guildford..	85.9	85.5	91.1	81.7	70.5	65.3	63.6	70.8	69.0	71.9	79.7	80.5	76.3
Perth Gardens	83.7	84.1	88.5	79.1	69.6	63.8	62.0	68.9	67.4	70.5	77.9	79.1	74.6
Perth Observatory ..	80.5	80.8	86.5	77.9	69.7	64.1	62.1	68.6	65.9	68.1	75.1	75.8	72.9
Fremantle	76.6	75.8	81.6	75.5	69.1	64.0	61.9	67.4	64.4	65.5	72.1	74.0	70.7
Rottnest	74.3	74.4	78.8	73.6	68.5	63.2	61.5	65.5	64.2	65.7	70.2	70.9	69.2
Mandurah	80.7	81.0	85.9	77.5	69.3	64.2	62.2	68.0	65.8	68.4	76.5	76.8	73.0
Wandering	86.0	85.1	89.2	77.9	67.7	61.5	57.6	64.5	64.7	69.3	77.6	80.7	73.5
Collie	82.7	82.4	86.4	76.4	67.0	60.7	58.2	64.8	63.8	66.4	75.9	76.9	71.8
Donnybrook	79.1	81.6	85.4	77.0	68.0	62.1	60.2	66.0	65.6	66.6	75.5	76.4	72.0
Bunbury	78.7	78.0	81.4	73.8	68.9	62.9	61.0	66.0	65.1	66.2	71.7	72.8	70.5
Busselton..	79.1	79.0	81.3	73.8	67.9	62.3	60.1	65.6	64.8	66.5	73.1	75.0	70.7
Bridgetown	80.8	81.6	84.7	76.3	67.3	60.9	59.5	65.2	64.5	66.6	75.2	76.0	71.6
Karridale..	72.2	73.5	76.7	71.6	67.5	62.3	59.9	64.3	62.9	64.7	70.3	71.6	68.1
Cape Leeuwin	71.3	72.7	74.1	71.3	67.6	62.6	60.4	63.4	62.4	64.5	68.6	70.4	67.4
Katanning	84.6	82.7	85.4	77.2	65.8	59.9	57.4	63.2	64.4	68.2	78.3	80.6	72.3
Albany	70.2	71.2	73.5	71.8	66.1	61.8	59.6	62.9	63.3	64.3	68.4	70.0	66.9
Breaksea Island ..	67.6	68.1	69.2	69.4	65.4	61.0	58.7	61.3	60.9	61.2	65.3	66.9	64.6
Esperance	76.5	75.2	78.9	76.6	70.2	63.9	62.4	65.9	66.7	67.4	72.9	75.2	71.0
Balladonia	84.8	83.6	83.7	81.1	70.0	62.4	62.3	65.1	70.9	74.7	78.8	82.1	75.0
Eyre	77.9	78.0	77.1	77.4	71.9	64.0	63.1	63.8	69.9	70.5	74.2	75.3	71.9

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Mean Minimum Night Temperatures at the Chief Observing Stations in Western Australia during 1902.

Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
Wyndham	79.5	79.1	77.9	76.3	71.6	68.2	67.4	69.0	73.5	79.9	80.6	82.1	75.4
Derby	76.7	76.2	76.0	67.1	63.3	58.9	57.3	58.9	64.3	71.0	76.1	77.0	68.6
Broome	78.2	77.1	75.7	68.6	62.7	60.3	57.1	58.6	64.4	70.9	74.6	77.1	68.8
Condon	76.1	75.9	72.8	62.0	57.6	50.3	48.3	52.8	55.5	57.8	67.8	70.6	62.3
Cossack	76.6	77.2	76.3	67.4	61.9	55.5	53.8	56.3	60.4	63.6	69.3	72.2	65.9
Onslow	75.1	74.8	75.6	65.1	59.7	51.6	50.8	52.2	56.9	60.4	65.8	69.3	63.1
Carnarvon	70.4	69.9	71.2	66.7	57.3	50.6	49.5	51.4	57.5	59.3	63.5	67.2	61.2
Hamelin Pool	66.5	65.1	68.1	60.7	55.4	48.1	47.3	49.4	53.4	54.9	60.8	62.6	57.7
Geraldton	61.7	63.0	63.7	57.3	57.9	49.3	49.5	48.2	51.9	53.2	57.8	59.8	56.1
Hall's Creek	77.0	75.4	69.1	59.3	53.5	48.5	47.5	53.5	58.4	69.5	74.5	76.2	63.5
Marble Bar	77.2	75.8	74.4	65.7	59.0	52.5	50.8	55.8	59.8	64.7	73.2	74.6	65.3
Nullagine	73.9	73.1	68.9	56.0	50.2	45.8	42.1	49.8	52.0	57.5	67.6	69.4	58.9
Peak Hill	71.2	69.3	71.7	62.7	52.8	45.8	44.0	49.0	54.2	56.8	64.7	69.8	59.3
Wiluna	68.9	66.9	65.3	55.6	49.1	40.6	38.0	42.4	49.8	54.6	62.0	67.9	55.1
Cue	69.7	68.1	70.4	61.6	51.8	44.2	43.3	47.7	51.0	54.2	62.0	66.3	57.5
Yalgoo	66.0	64.7	67.9	58.0	50.5	42.5	41.4	45.1	49.1	51.0	58.6	61.8	54.7
Lawlers	69.5	67.5	68.3	59.5	51.6	43.5	40.8	45.6	49.9	55.0	61.9	66.8	56.7
Laverton	68.1	66.7	64.6	57.5	49.0	42.4	39.6	43.7	49.5	54.0	60.8	64.7	55.0
Menzies	68.1	65.3	65.4	60.4	50.1	43.9	40.9	46.0	50.4	53.5	59.9	64.5	55.7
Kalgoorlie	63.5	61.4	62.5	57.6	50.3	44.8	41.8	44.9	50.0	52.8	57.6	61.4	54.0
Coolgardie	61.4	59.6	61.5	56.1	49.0	43.4	40.7	43.2	48.3	50.7	55.2	59.1	52.4
Southern Cross ..	61.5	58.9	61.5	52.1	45.7	37.8	37.1	41.3	44.7	47.8	54.7	57.8	50.1
Walebing	59.2	58.2	60.4	51.9	46.6	40.2	38.4	40.9	43.2	45.2	52.2	54.2	49.2

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Mean Minimum Night Temperatures at the Chief Observing Stations in Western Australia during 1902—continued.

Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
Northam	59.3	59.6	58.4	51.2	46.2	36.2	39.0	39.2	44.6	46.0	52.9	56.1	49.1
York	58.4	58.5	58.1	50.3	46.2	38.1	39.4	38.9	43.5	45.7	51.3	55.1	48.6
Guildford..	57.6	58.0	59.7	52.4	49.7	42.7	41.9	43.1	46.3	46.6	52.8	55.2	50.2
Perth Gardens	60.3	60.1	62.8	55.6	51.5	46.1	45.6	45.8	49.6	50.6	55.5	58.2	53.5
Perth Observatory ..	60.1	60.4	62.7	56.3	52.4	47.1	46.4	47.4	49.6	50.7	55.5	57.8	53.9
Fremantle	61.8	61.5	64.2	59.3	56.1	50.5	49.7	49.9	52.9	52.9	57.2	59.4	56.3
Rottnest	62.2	62.2	65.9	62.5	58.2	54.8	52.7	54.1	54.8	55.3	58.2	59.8	58.4
Mandurah	58.2	56.8	59.0	52.2	50.2	44.3	45.5	42.1	54.7	46.8	52.0	55.8	51.5
Wandering	52.6	53.1	51.7	44.6	42.2	34.4	36.2	34.7	40.1	38.4	43.8	49.1	43.4
Collie	50.1	50.5	50.9	42.5	41.3	34.8	36.4	36.8	41.7	42.2	45.8	49.0	43.5
Donnybrook	47.0	52.0	53.4	48.2	46.5	39.8	40.1	42.3	44.8	43.8	47.7	49.9	46.3
Bunbury	55.0	55.9	57.2	54.3	51.5	46.2	46.0	46.3	50.2	47.4	49.9	53.6	51.1
Busselton..	52.4	52.9	52.6	49.8	48.1	45.2	44.6	44.9	48.5	45.7	48.0	50.5	48.6
Bridgetown	47.1	48.6	48.4	44.3	42.4	37.7	39.2	38.9	41.5	42.6	44.9	47.8	43.6
Karridale..	55.3	55.3	56.4	52.9	48.8	46.9	46.8	44.6	49.4	49.2	50.7	52.9	50.8
Cape Leeuwin	60.2	61.0	62.7	61.0	56.7	53.6	51.9	53.5	54.0	54.3	57.0	58.9	57.1
Katanning	52.3	52.8	53.5	47.9	45.5	41.2	40.6	40.1	44.9	44.1	47.9	52.7	47.0
Albany	55.5	55.7	56.9	52.8	49.1	45.7	45.2	46.5	48.4	49.0	52.9	54.2	51.0
Breaksea Island ..	57.6	58.2	59.9	57.5	53.9	51.0	48.9	51.4	51.2	51.6	54.5	56.2	54.3
Esperance	59.5	59.8	58.7	55.4	49.6	48.1	45.5	46.7	48.4	51.6	55.3	55.4	52.8
Balladonia	58.2	58.0	54.7	52.3	46.8	43.9	39.7	42.8	45.6	48.6	51.9	54.0	49.7
Eyre	60.2	60.4	54.5	56.3	48.2	46.8	43.4	42.0	46.4	52.4	56.2	56.1	51.9

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Average Temperature and Rainfall at Perth (from Records made in the Botanic Gardens).

Month.	Temperature (1887 to 1903).								Rainfall (1876 to 1903).		
	Mean Maximum.	Mean Minimum.	Mean of Month.	Highest ever recorded.	Lowest ever recorded.	Number of hot days or days when the Maximum exceeded 90°.			Mean Monthly Amount.	Greatest in one Month.	Least in one Month.
						Mean.	Greatest.	Least.			
January ..	86.9	62.6	74.8	112.0	46.0	11	18	4	33	217	Nil
February ..	87.4	63.0	75.2	107.0	47.2	11	16	6	37	230	Nil
March ..	84.0	60.6	72.3	104.0	45.4	8	18	2	80	450	Nil
April	77.1	54.8	66.0	99.0	41.0	2	7	..	174	497	5
May	69.9	50.5	60.2	86.0	36.0	..	..	..	476	1213	115
June	64.4	47.6	56.0	81.0	35.0	..	..	..	654	1211	216
July	63.3	45.9	54.6	72.6	35.0	..	..	..	604	1026	302
August ..	65.2	47.1	56.2	79.7	33.6	..	..	..	571	1033	48
September ..	68.0	49.7	58.8	87.6	35.0	..	..	..	320	798	69
October ..	71.5	52.3	61.9	97.0	41.0	1	2	..	205	787	49
November ..	78.8	57.0	67.9	103.0	44.0	3	8	..	81	212	Nil
December ..	82.8	60.5	71.6	105.0	46.0	7	11	1	64	305	Nil
Year ..	74.9	54.3	64.6	112.0	33.6	..	..	..	3299	1213	Nil

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Mean Maximum Day Temperatures at the Chief Observing Stations in Western Australia during 1903.

Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
Wyndham	95.7	95.6	95.6	93.8	89.6	86.2	86.9	89.8	94.6	98.4	98.5	94.7	93.3
Derby	97.1	93.9	95.0	92.2	89.8	86.7	85.4	90.0	93.7	96.6	97.6	93.3	92.6
Broome	95.0	92.4	93.1	90.8	89.1	85.7	83.2	86.6	87.3	89.6	88.5	90.7	89.3
Condon	95.8	94.8	94.7	88.8	83.7	82.2	78.9	81.6	83.6	88.4	89.2	90.4	87.7
Cossack	99.3	96.9	96.3	89.8	84.8	78.8	76.0	81.6	85.4	90.4	94.2	93.1	88.9
Onslow	98.2	93.8	97.6	89.8	84.5	78.6	75.2	78.0	81.5	85.2	89.6	91.2	86.9
Carnarvon	89.8	91.4	86.3	80.8	78.9	74.8	70.5	71.2	73.7	77.2	80.3	86.3	80.1
Hamelin Pool	100.8	97.3	93.2	82.2	78.4	71.2	68.0	70.8	73.0	80.1	85.2	94.8	82.9
Geraldton	85.1	88.9	79.7	76.2	75.6	70.9	67.1	67.5	68.6	72.8	76.7	84.2	76.1
Hall's Creek	95.0	95.2	95.3	88.7	81.7	80.8	80.0	88.3	93.4	97.8	101.3	93.8	90.9
Marble Bar	109.3	105.2	103.8	93.8	89.1	83.5	80.2	88.0	91.6	98.7	105.1	103.6	96.0
Nullagine..	105.6	102.1	101.0	90.2	83.5	78.2	74.9	83.2	87.2	94.2	101.8	99.9	91.8
Peak Hill	101.8	98.2	94.8	81.3	76.8	68.6	63.3	71.7	75.3	81.7	91.8	95.1	83.4
Wiluna	101.1	96.5	93.2	80.3	74.1	67.5	62.3	71.1	75.6	82.0	91.9	93.2	82.4
Cue	103.6	98.2	93.3	80.7	77.1	68.8	63.0	68.9	72.2	80.7	89.5	95.8	82.6
Yalgoo	101.9	96.4	90.2	78.6	75.6	66.6	62.8	67.1	70.7	78.6	87.4	92.3	80.7
Lawlers	99.5	92.4	88.7	76.6	70.5	64.8	60.0	68.3	71.9	78.7	87.3	88.6	78.9
Laverton	98.6	91.7	87.6	76.1	69.3	65.4	61.5	68.8	74.0	79.0	87.2	87.5	78.9
Menzies	96.6	90.1	85.7	73.5	66 4	62.7	58.5	65.7	70.0	76.4	85.5	84.1	76.3
Kanowna..	—	—	—	—	65.6	62.7	58.7	65.5	68.5	77.7	83.7	82.7	—
Kalgoorlie	96.2	89.7	84.7	72.7	65.1	62.4	58.2	65.2	69.2	76.0	83.3	83.3	75.5
Coolgardie	96.0	89.2	84.4	72.5	64.5	62.1	57.6	64.9	68.8	75.2	82.6	83.3	75.1
Southern Cross ..	99.9	91.7	87.0	73.6	68.0	64.3	59.4	65.7	69.3	75.3	83.6	87.4	77.1
Walebing	95.5	90.0	82.8	73.0	69.3	63.7	56.4	62.4	64.7	69.0	78.0	86.0	74.2

— Signifies "no record."

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Mean Maximum Day Temperatures at the Chief Observing Stations in Western Australia during 1903—continued.

Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
Northam	96.5	91.6	85.1	73.0	68.6	64.3	60.7	64.1	66.2	71.1	83.1	89.6	76.2
York	95.6	90.7	83.0	71.6	67.8	64.0	59.3	63.2	64.6	70.0	80.2	89.8	75.0
Guildford..	91.0	90.6	81.5	73.7	71.1	65.9	61.5	64.6	65.1	71.0	79.7	85.2	75.1
Perth Gardens ..	88.3	88.7	79.1	71.6	69.1	64.3	61.5	63.9	65.5	70.0	78.9	83.8	73.7
Perth Observatory ..	85.8	86.4	76.8	71.0	69.4	64.9	61.5	63.2	63.9	68.2	76.0	81.3	72.4
Fremantle	80.5	83.4	73.9	70.5	69.0	65.5	61.8	63.1	63.0	66.9	73.1	79.3	70.8
Rottnest	78.0	79.8	72.4	69.0	67.6	64.3	60.8	62.7	62.8	66.7	72.1	76.4	69.4
Mandurah	86.7	87.3	76.9	71.3	70.5	65.5	61.9	63.2	64.0	69.1	76.3	82.4	72.9
Wandering	90.8	87.7	78.4	67.5	65.0	61.5	56.5	58.4	52.6	65.3	76.5	84.3	70.4
Collie	87.7	85.5	77.0	67.6	66.3	61.4	58.0	60.9	61.1	66.5	74.4	81.7	70.7
Donnybrook	87.6	87.1	77.3	69.1	68.3	63.1	60.2	63.3	62.6	66.8	74.1	80.2	71.6
Bunbury	81.0	82.9	73.7	68.6	68.4	64.6	61.2	62.5	62.9	67.7	73.6	79.0	70.5
Busselton..	82.4	81.4	74.1	68.5	67.2	63.6	60.2	61.4	61.6	67.6	73.9	79.0	70.1
Cape Naturaliste ..	—	—	—	—	—	—	—	—	61.4	63.8	69.8	73.8	—
Bridgetown	86.3	85.4	76.9	67.7	66.7	62.4	57.5	61.4	61.9	66.2	72.8	79.9	70.4
Karridale..	76.4	77.3	73.5	66.9	68.5	63.7	59.7	61.8	61.8	63.5	70.2	74.0	68.1
Cape Leeuwin	73.0	75.1	71.6	65.9	66.7	63.2	59.7	61.3	61.3	62.4	68.5	71.4	66.7
Katanning	90.9	85.1	78.9	66.3	64.6	60.0	56.1	58.8	60.4	65.7	73.9	80.8	70.1
Albany	73.6	72.5	70.5	64.8	64.6	61.8	58.3	61.0	62.1	63.2	67.6	70.3	65.9
Breaksea Island ..	70.2	69.6	67.3	62.7	62.9	60.5	56.8	58.6	59.8	59.3	64.3	67.3	63.3
Esperance	80.7	77.9	75.0	68.9	66.4	63.6	60.6	63.3	65.4	68.6	72.5	74.7	69.8
Balladonia	90.3	85.4	81.1	71.4	64.6	62.6	59.3	65.7	68.1	74.9	78.6	80.1	73.5
Eyre	82.5	76.9	76.5	71.7	65.8	64.0	60.1	65.6	68.6	73.3	72.9	72.1	70.8

— Signifies "no record."

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Mean Minimum Night Temperatures at the Chief Observing Stations in Western Australia during 1903.

Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
Wyndham	79.3	78.9	79.5	79.0	72.5	65.2	66.2	71.1	75.9	80.2	81.2	78.6	75.6
Derby	79.2	77.3	78.2	74.3	64.3	56.8	55.2	61.4	64.0	71.5	74.9	77.8	69.6
Broome	79.0	79.8	79.0	75.3	65.5	58.0	56.8	60.2	64.3	70.8	74.7	78.4	70.2
Condon	75.7	78.4	—	69.9	59.8	51.6	47.7	51.0	54.1	61.1	67.8	73.3	63.5
Cossack	77.7	77.6	75.3	70.6	64.5	57.3	53.6	53.6	57.7	63.3	68.8	73.8	66.2
Onslow	73.9	75.2	72.0	68.1	62.7	57.9	52.3	53.0	53.7	59.7	64.6	69.5	63.6
Carnarvon	71.4	73.0	66.2	62.6	60.2	56.6	50.2	52.1	56.0	60.7	65.1	68.9	61.9
Hamelin Pool	69.3	71.3	62.5	59.0	56.1	54.5	46.7	47.9	50.8	54.9	61.0	65.7	58.3
Geraldton	63.4	67.3	59.4	58.4	54.4	54.9	48.7	49.9	52.7	55.8	57.8	59.7	56.9
Hall's Creek	73.7	75.9	73.7	68.8	58.8	44.0	42.8	49.4	57.0	68.8	74.4	72.8	63.4
Marble Bar	78.6	78.1	77.6	70.3	62.3	53.8	51.1	52.7	58.7	66.8	71.0	74.8	66.3
Nullagine	73.6	75.8	72.7	66.4	54.8	47.1	42.7	45.7	51.7	60.6	69.0	72.2	61.0
Peak Hill	74.9	74.9	68.0	59.3	55.1	50.4	44.6	48.4	51.0	57.6	66.2	69.6	60.0
Wiluna	71.5	70.6	64.7	55.4	50.7	46.3	39.8	42.4	47.7	53.9	64.7	66.1	56.1
Cue	74.5	72.5	63.5	55.8	53.4	48.5	43.0	45.9	49.4	55.0	63.0	66.5	57.6
Yalgoo	69.9	68.7	58.2	54.3	51.5	48.9	42.0	45.0	45.5	51.1	59.6	65.5	55.0
Lawlers	72.5	70.0	63.4	55.5	51.2	46.7	40.0	42.9	47.8	52.8	62.2	64.4	55.8
Laverton	70.6	66.4	61.2	54.5	49.2	45.2	38.8	42.0	46.8	52.8	61.4	62.0	54.3
Menzies	70.2	65.3	60.2	53.4	49.9	46.4	40.8	43.5	47.5	51.1	59.4	60.3	54.0
Kanowna..	—	—	—	—	48.2	44.3	40.5	41.7	45.8	49.8	56.4	57.4	—
Kalgoorlie	67.0	62.8	58.3	52.4	49.1	46.5	42.2	43.0	47.2	50.7	57.1	58.6	52.9
Coolgardie	64.7	61.1	56.3	51.6	47.0	45.4	41.6	42.7	46.0	49.0	55.9	57.6	51.6
Southern Cross.. ..	64.5	61.6	53.4	49.5	46.9	43.4	40.4	41.1	44.0	48.4	56.0	58.3	50.6
Walebing	63.1	62.8	54.4	50.8	50.7	47.0	41.8	42.7	44.9	47.6	53.3	58.5	51.5

— Signifies "no record."

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Mean Minimum Night Temperatures at the Chief Observing Stations in Western Australia during 1903—continued.

Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
Northam	63.9	61.5	54.1	51.7	47.5	42.7	41.9	40.7	45.7	48.3	54.8	60.3	51.1
York	62.6	61.5	52.9	49.7	46.9	44.7	42.6	41.8	45.2	47.2	53.6	58.3	50.6
Guildford..	61.7	62.6	52.5	52.0	51.5	46.5	45.3	45.0	48.5	52.1	57.0	60.7	53.0
Perth Gardens	65.5	64.1	56.2	54.4	52.7	49.4	47.6	47.6	49.9	53.2	57.5	60.6	54.9
Perth Observatory ..	63.4	64.6	56.7	54.7	53.6	50.2	48.2	47.7	49.8	53.1	57.3	60.9	55.0
Fremantle	64.7	65.1	58.6	56.4	55.5	53.5	50.8	50.6	51.9	54.5	58.3	61.9	56.8
Rottnest	64.9	66.1	60.6	57.5	57.5	56.0	52.6	53.6	53.2	55.1	59.4	62.0	58.2
Mandurah	60.1	62.1	52.0	50.1	47.9	47.3	45.4	46.2	48.4	50.8	55.2	58.9	52.0
Wandering	56.7	56.0	46.1	46.3	41.5	39.7	40.6	37.5	—	42.2	47.6	53.5	—
Collie	54.9	51.9	44.6	43.9	40.2	39.5	38.1	38.3	41.0	45.1	49.3	51.9	44.9
Donnybrook	56.4	56.1	47.4	46.5	44.9	44.2	41.5	47.5	51.1	51.4	50.7	54.4	49.3
Bunbury	58.7	57.4	50.7	49.8	49.5	50.4	45.1	47.7	49.6	50.4	53.5	56.5	51.6
Busselton..	56.9	54.1	47.9	47.6	47.5	47.6	43.6	45.3	47.9	47.4	51.7	53.4	49.2
Cape Naturaliste ..	—	—	—	—	—	—	—	—	50.6	50.7	53.8	55.5	—
Bridgetown	51.9	49.8	43.2	43.9	39.3	41.3	39.0	39.4	42.2	43.7	48.7	48.7	44.3
Karridale.. ..	58.3	56.5	52.0	50.8	46.3	49.0	46.5	46.6	49.5	48.5	51.6	54.8	50.9
Cape Leeuwin ..	62.1	62.4	59.5	56.0	55.6	54.6	51.3	51.7	52.1	53.6	57.3	59.3	56.3
Katanning	55.4	54.6	48.3	48.1	43.6	43.3	41.5	41.5	42.8	44.8	50.4	52.6	47.2
Albany	57.1	58.1	51.4	51.8	47.4	46.1	44.9	44.3	46.2	47.1	54.1	55.8	50.4
Breaksea Island ..	59.1	59.9	55.6	53.4	52.3	51.4	48.7	48.6	49.3	50.8	55.0	57.1	53.4
Esperance	60.3	59.3	55.2	53.3	48.7	48.4	46.2	46.6	47.7	48.1	54.3	55.8	51.9
Balladonia	57.8	55.9	52.0	50.4	45.9	44.0	40.9	40.7	45.1	46.5	51.0	52.5	48.6
Eyre	60.7	60.0	57.3	56.8	48.8	47.3	42 7	43.8	46.9	48.3	54.8	55.5	51.9

— Signifies "no record."

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Rainfall in Western Australia during 1902-1903.

With averages (to the end of 1903) for all Stations having at least 5 years' record. 100 points = 1 inch. The Sign — signifies "no record."

NOTE.—The stations are grouped into divisions, and these are subdivided into square degrees, which are figured according to the latitude and longitude of the N.W. corner of each square, the first two figures representing the latitude and the last two the longitude, less 100°. Thus, Perth is in the square 3115, showing that its latitute is 31° odd minutes, and its longitude 115° odd minutes. The mean rainfall for each square degree is adopted from all stations situated in that square having complete records for the year. The average is taken for all years up to and including 1903.

Square.	Locality.	Total for 1902.		Mean for 1902.	Total for 1903.		Mean for 1903.	Average.	No. of Years.
		Rainfall.	Wet days.		Rainfall.	Wet days.			
	EAST KIMBERLEY DIVISION.								
1528	Wyndham	3017	54		5325	76			
	Stud Station	2847	53		4525	—			
	6-Mile Hotel	3958	45		—				
	Carlton	3071	58	3223	5071	53	4974	2850	17
1623	Rosewood Downs	1823	38		3966	65			
	Argyle Downs	2571	51		4234	74			
	Lisadell	2626	45	2340	4120	44	4106	2581	12
1728	Turkey Creek	2474	56		5041	77			
	Plympton, St. Mary ..	1847	—	2160	—	—	5041	2470	9
1827	Hall's Creek	1736	49		4202	66			
	Ruby Plains	1846	55	1791	2448	63	3325	2108	13
1828	Flora Valley	1356	36	1356	2751	55	2751	1825	5
1928	Denison oDwns	1888	55	1888	2407	60	2407	—	--
	WEST KIMBERLEY DIVISION.								
1622	Beagle Bay	—	—	—	2441	--	2441	--	—
1623	Oobagama	3150	56	3150	3608	48	3608	3371	8
1722	Broome	2236	40		1915	31			
	Roebuck Plains	—	—	2236	1768	36	1842	2399	14
1723	Derby	1593	26		2579	49			
	Yeeda	1860	31	1726	2189	40	2384	2504	18
1724	Leonard	—	—	--	—	--	--	2190	5
1725	Leopold Downs	2078	33	2078	3108	46	3108	—	--
1821	La Grange Bay	2719	46	2719	1352	34	1352	2022	13
1822	Thangoo	2284	--	2284	1126	31	1126	2292	10
1823	Mt. Anderson	2029	31	2029	1998	37	1998	—	-
1824	Upper Liveringa	2187	27	2187	—	--	—	—	--
1825	Fitzroy Crossing	1272	42		3002				
	Fitzroy Station	1379	31		2738				
	Quanban Downs	1784	22		3153				
	Noonkanbar	1705	30	1535	1426	--	2580	2268	10
	NORTH-WEST DIVISION.								
1920	Wallal	2109	24	2109	762	14	762	1770	7
2017	Cossack	1306	18		968	13			
	Roebourne	1101	19		884	11			
	Balla Balla	1506	23		1075	10			
	Whim Creek	1761	22	1418	1852	16	1195	1316	22
2018	Port Hedland	1462	28		909	17			
	Boodarie	1235	17		1008	11			
	Mallina	1158	20		1201	15			
	Mundabullangana	--	--	1285	--	--	1039	1353	16
2019	Condon	2074	25		925	9			
	De Grey River	1805	26		972	9			
	Mulgie	1343	19		703	18			
	Warralong	1310	22		1024	21			
	Coongon	1154	12		847	18			
	Ettrick	1209	25	1483	923	19	899	1405	16

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Rainfall in Western Australia during 1902-1903 -continued.

Reference.	Locality.	Total for 1902. Rainfall.	Total for 1902. Wet days.	Mean for 1902.	Total for 1903. Rainfall.	Total for 1903. Wet days.	Mean for 1903.	Average.	No. of years.
	NORTH-WEST DIVISION—*continued*.								
120	Mucean	934	25		846	21			
	Eel Creek	1085	--		613	--			
	Warrawagine	1476	16		781	18			
	Bamboo Creek	1341	25	1209	569	19	702	1441	9
214	Onslow	441	20	441	635	16	635	789	18
215	Mardie	512	12		459	9			
	Yarraloola	654	16		490	12			
	Chinginarra..	565	10		580	7			
	Fredamullah	904	23	659	792	29	580	810	17
216	Forteecue	676	21	676	555	9	555	1039	16
217	Cooyapooya	1748	16		1007	6			
	Woodbrooke	1593	17		1041	9			
	Croydon	1631	—		2301	25			
	Millstream	1446	19		1395	18			
	Tambray	1783	32		2175	30			
	Mt. Florence	1640	28	1640	1547	19	1577	1581	17
218	Pilbara	1685	13		1326	20			
	Woodstock	1607	21		620	20			
	Yandyarra	1073	17	1455	1159	11	1035	1932	6
219	Marble Bar	1240	26		829	31			
	Warrawoona	1406	30		834	21			
	Corunna Downs	1148	21	1264	545	24	736	1458	9
220	Nullagine	1674	28		863	28			
	Yandicoogina	762	—	1218	887	--	875	1580	6
221	Point Cloates	818	31	818	734	20	734	1147	5
224	Yanrie	681	10	681	562	20	562	703	7
225	Nanutarra	641	19		786	20			
	Wogoola	876	—	758	1386	29	1086	979	10
228	Red Hill	1164	12		986	19			
	Mt. Stewart	1627	16		1636	26			
	Mt. Mortimer	1186	25	1326	1177	25	1266	1068	14
229	Mulga Downs	1326	22	1326	705	19	705	1349	6
229	Roy Hill	777	24		748	20			
	Kerdiadary	1513	11	1145	700	24	724	--	--
230	Mosquito Creek	--	—	—	395	--	395	—	--
	GASCOYNE DIVISION.								
234	Winning Pool	1242	24		1165	23			
	Wandagee	507	12		608	17			
	Williambury	301	16	683	744	30	839	856	15
235	Towera	635	26		658	27			
	Maroonah	621	18		783	--			
	Yanyareddie	719	21	658	1212	20	884	973	11
236	Ullawarra	739	19	739	651	13	651	841	7
243	Boolathana	591	16		823	28			
	Carnarvon	910	27		1234	35			
	Bernier Island	671	35	724	1054	40	1037	850	21
244	Doorawarrah	872	19	872	672	20	672	842	16
245	Minnie Creek	718	25	718	656	24	656	—	—
246	Bangemall	1396	25		749	19			
	Mt. Augustus	1452	17		974				
	Gifford Creek	1210	19	1353	753	12	825	—	—
243	Dirk Hartog Island ..	785	54		1141	57			
	Sharks Bay	580	24	682	1055	34	1098	921	11
244	Wooramel	941	26	941	1159	36	1159	882	5
245	Mungarra	1241	25		471	19			
	Clifton Downs	1123	23		386	9			
	Dairy Creek	823	30		573	--			
	Meedo	921	29		829	40			
	Yarra Yarra	1108	..	1043	740	24	600	642	12
246	Errivilla	1132	31	1132	732	—	732	698	11
247	Mt. Gould	1106	22		697	23			
	Berringarra	1310	21		5[illegible]8	23			
	Mooralrie	—	—		754	20			
	Upper Clifton Downs ..	1347	24		555	--			
	Wandary	--	—	1254	712	24	645	753	17

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Rainfall in Western Australia during 1902-1903—continued.

Square.	Locality.	Total for 1902. Rainfall.	Total for 1902. Wet days.	Mean for 1902.	Total for 1903. Rainfall.	Total for 1903. Wet days.	Mean for 1903.	Average.	No. of years.
	GASCOYNE DIVISION—*continued.*								
518	Peak Hill	1953	40		561	25			
	Horseshoe	1798	38		785	30			
	Mt. Fraser	—	—	1876	719	17	688	1180	6
2613	Kararang	791	42		1185	41			
	Tamala	894	41	843	1357	47	1271	967	10
2614	Hamelin Pool	691	31	691	763	37	763	740	18
2615	Byro	1130	27		616	22			
	Woogorong	971	24	1051	646	24	631	745	-
2616	Milly Milly	1015	12		455	23			
	Manfred	964	25		627	29			
	Boolardy	791	8	923	551	15	544	659	14
2617	Mileura	1493	26	1493	695	23	695	920	5
2618	Belele	—	—		700	20			
	Abbotts	1286	27		838	25			
	Naunine	1310	35		589	28			
	Annean	1164	26		681	30			
	Star of the East	1231	30		670	27			
	Meekatharra	—	—	1248	—	—	696	741	14
2714	Murchison House	1243	56		1620	60			
	Mt. View	864	42	1054	1095	32	1358		
2715	Wooleane	841	23		622	23			
	Billabalong	478	16	660	585	—	604	712	9
2716	Murgoo	708	21		679	24			
	Mt. Wittenoom	675	26		698	33			
	Meka	869	25		667	33			
	New Forest (late Meelya)	766	27	753	745	28	697	721	15
2717	Coodardy	725	17		447	29			
	Cue	900	32		596	42			
	Day Dawn	732	18		595	41			
	Lake Austin	730	25		679	34			
	Lennonville	658	23	749	891	47	642	666	9
2718	Tuckanarra	990	32	990	618	—	618	—	—
2816	Gabyon	772	26		830	29			
	Yalgoo	612	29		716	40			
	Gullewa	583	29		964	37			
	Barnong	—	—		1127	43			
	Wurarga	—	—	656	779	26	883	938	15
2817	Mt. Magnet	573	19		821	36			
	Yoweragabbie	598	11		642	—			
	Murrum	618	15		742	17			
	Burnerbinmah	—	—	596	708	38	728	639	9
2818	Challa	718	17		677	30			
	Warracootharra	811	14	764	853	—	765	686	8
	SOUTH-WEST DIVISION.								
2813	Abrolhos	—	—	—	—	—	—	1344	5
2814	Northampton	1556	47		2202	62			
	Mt. Erin	1221	51		2097	59			
	Okabella	1410	39		2577	73			
	Narra Tarra	1365	35		2085	47			
	Geraldton	1434	71		2419	90			
	Tibradden	—	—		2171	70			
	Bootenal	1133	33		—	—			
	Greenough	1746	42		2853	65			
	Mumby	—	—	1409	2021	78	2303	1893	27
2815	Yuin	—	—		—	—			
	Mullewa	816	47		1504	65			
	Sand Springs	1301	53		1878	55			
	Kockatea	666	39	928	1599	57	1660	1066	8
2914	Dongara (Pearse) ..	1327	50		2169	69			
	Dongara (P.O.)	1288	37	1308	2310	72	2240	1847	20
2915	Strawberry	988	37		—	—			
	Mingenew	935	64		1820	90			
	Carnamah	1091	57		1749	77			
	Mingah	—	—	1004	1504	65	1691	1472	16

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Rainfall in Western Australia during 1902-1903—continued.

Square.	Locality.	Total for 1902. Rainfall.	Total for 1902. Wet days.	Mean for 1902.	Total for 1903 Rainfall.	Total for 1903 Wet days.	Mean for 1903.	Average.	No. of Years.
	SOUTH-WEST DIVISION—*continued.*								
916	Rothesay	688	--	688	1163	--	1163	1037	5
915	Dandarragan	1697	56		2553	95			
	Yatheroo	1733	63	1670	2528	82	2540	2384	19
916	Watheroo	926	48		1915	93			
	Moora	1016	49		2251	80			
	Walebing	1145	68		2362	97			
	New Norcia	1487	64	1143	2133	93	2165	1824	21
1.15	Gingin	2624	66		3715	102			
	Kalbyamba	2705	91		--	--			
	Rottnest	2212	91		2899	133			
	Claremont (Richardson) ..	2433	--		--	--			
	Claremont	2650	81		--	--			
	Subiaco	2650	87		3388	129			
	Perth Observatory ..	2706	93		3569	140			
	Perth Gardens	2652	89	2579	3545	139	3423	3100	28
916	Hatherley	1018	50		1420	72			
	Momberkine	900	46		1460	63			
	Culham	1257	--		--	--			
	Newcastle	1263	63		2041	71			
	Eumalga	1412	66		2322	96			
	Northam	973	51		1788	77			
	Grass Valley	946	50		1713	76			
	Cobham	1114	65		2025	107			
	York	1113	66		1693	100			
	Mundaring Weir .. .	2746	82	.	4400	115			
	Belvoir	2435	71		3211	100			
	Guildford	2399	83	1470	3683	126	2341	2091	27
917	Meckering	892	47		1341	83			
	Kellerberrin	722	44		1217	73			
	Doongin	874	42		1283	67			
	Whitehaven	886	32		1511	102			
	Sunset Hills	1130	58		1682	76			
	Cunderdin	825	—		--	--			
	Monglin	—	--		1748	86			
	Cuttenning	—	—		1306	88			
	Yarragin	—	—		1392	79			
	Codg Codgen	--	--	888	1215	102	1411	1221	15
215	Fremantle	2456	90		3302	135			
	Rockingham	2812	78		3569	111			
	Jarrahdale	3455	73		4896	107			
	Mandurah	2586	84		3646	111			
	Pinjarra	2717	86		4476	113			
	Harvey	2964	103		4137	121			
	Yarloop	--	--	2832	4237	136	4038	3397	27
216	Beverley	1193	56		1578	79			
	Canning Waterworks ..	3170	73		3325	98			
	Bannister	1984	83		3091	111			
	Wandering	1789	83		2880	98			
	Marradong	2138	70		3075	93			
	Armadale	2521	78		3619	98			
	Canning River	3204	78	2204	4600	95	3107	2238	21
217	Barrington	--	—		1449	85			
	Sunning Hill	1239	51		1865	77			
	Pingelly	1138	55		1944	71			
	Wickepin	1207	58		2014	95			
	Narrogin	1509	70		2046	99			
	Gillimanning	--	--		1898	98			
	Stock Hill	—	—	1273	1780	74	1857	1674	16
315	Bunbury	2507	104		4457	120			
	Dardanup	2664	82		3888	103			
	Boyanup	2615	98		3989	117			
	Donnybrook	2890	101		3729	119			
	Busselton	2466	141		3089	135			
	Quindalup	—	--		3544	130			
	Lower Blackwood ..	3980	104		5519	153			
	Ferndale	—	-	2854	4000	125	4027	3411	27

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Rainfall in Western Australia during 1902-1903—continued.

Square.	Locality.	Total for 1902. Rainfall.	Total for 1902. Wet days.	Mean for 1902.	Total for 1903 Rainfall.	Total for 1903 Wet days.	Mean for 1903.	Average.	No. of years.
	SOUTH-WEST DIVISION—*continued.*								
3316	Williams	1700	77		2377	116			
	Darkan	1681	--		2059	70			
	Glen Mervyn	3146	98		4056	117			
	Greenbushes	2911	99		4045	92			
	Bridgetown	3062	134		3698	166			
	Mandalup	3054	104		—	—			
	S. A. Settlement ..	2656	97		--	--			
	Collie	2781	114		3775	144			
	Glenrichy	1699	67		2897	98			
	Greenfields	--	--	2521	3496	113	3375	2872	19
3317	Arthur	1634	88		2174	79			
	Wagin	1471	75		2338	86			
	Glen Cove	1533	83		2494	100			
	Dyllabing	1358	79		2138	109			
	Katanning	1429	81		2431	114			
	Kojonup	2035	91		3547	124			
	Broome Hill	1600	95		3518	109			
	Sunnyside	1545	89		2258	109			
	Woodyanup	1466	92		2565	104			
	Bullock Hills	--	--		2222	86			
	Bunking	--	--	1563	2813	68	2591	1851	19
3318	Glenvale	--	--	—	—	—	--	1602	5
3319	Jarramongup	1419	89	1419	2229	79	2229	1501	9
3415	Karridale	4527	179		4134	190			
	Cape Leeuwin	3218	193		2918	187			
	Biddellia	4522	136	4089	4650	156	3967	3910	21
3416	Wilgarup	2991	136		3798	155			
	Balbarup	3012	142		3802	134			
	Riverside	2826	125		3270	152			
	Deeside	2739	132		3192	156			
	Mordalup	2244	142		2849	150			
	Lake Muir	2689	139		3241	155			
	The Warren	5211	127		5264	155			
	Westbourne	--	--	3102	3272	--	3586	3841	9
3417	Blackwattle	1959	73		2625	107			
	Cranbrook	1688	79		2334	112			
	Forest Hill	3198	161		3086	187			
	Mt. Barker	2858	126		3206	161			
	St. Werburg	2719	128		2911	167			
	Point King	4043	121		3879	138			
	Albany	4121	149		4044	186			
	Denmark	4138	104		4659	146			
	Kendenup	2571	114		2812	138			
	Grasmere	--	--	3033	4188	178	3434	3055	27
3418	Pallinup	1358	90		2169	105			
	Cape Riche	2560	85		2125	102			
	Breaksea	2740	158		3262	196			
	Wattle Hill	--	--	2219	3972	--	2882	2320	14
3419	Bremer Bay	2179	112	2179	2670	122	2670	2244	19

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Rainfall in Western Australia during 1902-1903—continued.

Squares.	Locality.	Total for 1902. Rainfall.	Total for 1902. Wet days.	Mean for 1902.	Total for 1903. Rainfall.	Total for 1903. Wet days.	Mean for 1903.	Average.	No. of Years.
	EASTERN DIVISION.								
519	Gum Creek	—	—	—	743	22	743	—	—
520	Lake Way	1366	41	1366	737	44	737	1305	5
720	Mt. Sir Samuel	1155	38		893	37			
	Leinster G.M.	1339	29	1247	964	40	928	—	—
721	Lake Darlot	1266	—	1266	725	28	725	1083	5
920	Lawlers	1222	47	1222	1015	53	1015	876	7
521	Sturt Meadows	1022	37		—	—			
	Mt. Malcolm	916	27		972	32			
	Mt. Leonora	934	47		871	43			
	Murrin Murrin	1009	46	970	990	42	944	809	6
922	Laverton	1228	43		861	24			
	Mt. Morgans	1025	38		828	35			
	Burtville	1062	36	1105	698	15	795	902	6
917	Field's Find	705	24	705	901	—	901	876	5
520	Mulline	1514	28	1514	1331	40	1331	—	—
521	Tampa	1070	24		1002	25			
	Granites	1079	33		930	37			
	Niagara	1240	33		1184	36			
	Yerilla	1188	41		1192	33			
	Menzies	1126	34		1524	53			
	Kookynie	1046	..	1125	1257	40	1181	818	7
922	Edjudina	1270	47	1270	1311	41	1311	—	—
1.8	Wattoning	835	21	835	1089	39	—	920	7
1.9	Mt. Jackson	745	31	745	1100	37	1100	899	5
120	Waverley	1208	36		1477	50			
	Mulwarrie	1329	45	1268	1254	53	1366	—	—
821	Goongarrie	1378	36		1219	44			
	Kurawa	1508	40		1395	58			
	Kanowna	1391	44		1251	60			
	Bulong	1231	44		997	60			
	Kalgoorlie	1201	46		1320	56			
	Coolgardie	1470	52		978	62			
	Bardoc	—	—	1363	1146	—	1187	816	11
1122	Kurnalpi	1274	43	1274	1195	51	1195	901	7
1118	Mangowine	1034	42		1192	..			
	Bodallin	960	31		993	42			
	Burracoppin	806	—		1095	—			
	Merredin	—	—	933	981	—	1065	1080	17
1119	Southern Cross	1021	52		902	63			
	Yellowdine	962	37		1088	47			
	Karalee	1285	45		1115	47			
	Parker's Road	—	—	1089	999	—	1026	913	14
1120	Boorabbin	1328	53		995	67			
	Woolgangie	1414	—		837	45			
	Bulla Bulling	1711	45		913	49			
	Koorarawalyee	—	—		1104	—			
	Boondi	—	—	1484	815	—	933	883	9
1121	Burbanks P.O.	1332	48		1053	57			
	Burbanks G.M.	1301	43		—	—			
	Woolubar	1205	39		1168	—			
	Widgemooltha	1572	54		941	66			
	50-Mile Tank	1190	43		926	56			
	Waterdale	—	—	1320	825	54	983	1029	6
1221	Norseman	1382	60	1382	877	56	877	952	8
1222	Fraser Range	1609	56		1066	65			
	Southern Hills	1721	56	1665	1113	48	1090	—	—

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Rainfall in Western Australia during 1902–1903—continued.

Square.	Locality.	Total for 1902.		Mean for 1902	Total for 1903.		Mean for 1903.	Average.	No. of Years.
		Rainfall.	Wet days.		Rainfall.	Wet days.			
	EUCLA DIVISION.								
3320	Cocanarup	1562	102		1281	111			
	Ravensthorpe	1707	97		1360	104			
	Hopetoun	1886	115	1718	1793	111	1478	1514	5
3321	Grass Patch	1988	109		1313	119			
	Swan Lagoon	1911	117		1270	124			
	30-Mile Condenser ..	2316			1746	105			
	Gibson's Soak	2560	87		2021	123			
	Esperance	2448	120		2497	147			
	Park Farm	2574	105		2357	134			
	Fanny's Cove	2806	77		2433	75			
	Myrup	2760	103	2420	2672	134	2039	2300	20
3322	Lynburn	2572	91		2373	102			
	Boyatup	2541	90	2556	2759	115	2566	—	—
3323	Israelite Bay	1943	71		1297	95			
	Point Malcolm	2346	94		1930	126			
	Balbinia	1904	80	2064	1187	92	1471	1460	19
3223	Balladonia	1585	69	1585	905	74	905	987	13
3226	Eyre	1738	91	1738	1322	95	1322	1105	19
3127	Mandra Bellæ	1200	75		1343	58			
	Clifton Downs	1529	70	1364	—	—	1343	—	—
3128	Eucla..	1293	75	1293	1059	97	1059	1055	20

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PART III.—GOVERNMENT.

1.—THE COMMONWEALTH AND THE STATE.

The idea of a United Australia was suggested by Earl Grey so far back as 1847. The scheme was then strenuously opposed even by the colonies themselves, the time for an amalgamation of their respective interests evidently not being yet ripe, although the question of a uniform tariff was, then and after, frequently discussed by colonial statesmen, and though for more than thirty years Federation was repeatedly made the special object of intercolonial conferences. A Bill embodying a scheme for carrying out the idea was framed by Sir Henry Parkes in 1881, but did not gain the concurrence of the other leading politicians. In 1883 Sir Samuel Griffith drafted the Bill which, in 1885, created the Federal Council. The members of that Council met for the first time in 1886, at Hobart. But the plan of Federation which it was intended to carry out did not satisfy Sir Henry Parkes, as it did not go far enough in the direction of unifying the interests of the colonies. He therefore initiated a more comprehensive rival scheme, and, throwing all the weight of his personal influence into the scale, gained that popular approval for his ideas which alone could secure success, and the lack of which doomed the other movement to failure. A Federation Conference took place in Melbourne in February, 1890, and was attended by Sir Henry, whose far-reaching proposals triumphed over the more timid intentions of the Federal Council. A resolution was carried to the effect that, in the opinion of the Conference, the best interests and the present and future prosperity of the Australian colonies would be promoted by an early union under the Crown; and that the members of the Conference should take steps to induce their respective legislatures to appoint, during that year, delegates, not exceeding seven in number, from each colony, empowered to consider and report upon an adequate scheme for a Federal Constitution. In consequence of this resolution, the first Federal Convention met in Sydney in March, 1891. Both at the Melbourne Conference and at the Sydney Convention Western Australia was represented. But although favouring the general idea of Federation, her leading politicians realised that her position as the least populous colony required the most careful consideration in any scheme of union, lest she might jeopardise her commercial interests by binding herself to uniform

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legislation in matters of trade. Before this, in Melbourne, in 1890, Sir James Lee Steere had expressed his doubt whether his colony could afford to sacrifice her provincial tariff. The Western Australian representatives at the Sydney Convention in 1891 were: Mr. John Forrest, Mr. W. E. Marmion, Sir James G. Lee Steere, Mr. J. A. Wright, Mr. J. W. Hackett, Mr. A. Forrest, and Mr. W. T. Loton. A Bill was drafted by this Convention on lines which have since been adopted as the basis of all the subsequent stages of the movement. Unfortunately, however, members failed to come to an agreement with regard to the fiscal policy to be established. The difference of population, of the economical conditions prevailing in the various colonies, and of the systems of a more or less protectionist or free trade character consequently favoured by their respective delegates, made a reconciliation of opinions almost impossible for the time being, and for a while it seemed as if the Convention would have no results. In 1893, however, another meeting, that of the "Federation Council," took place at Hobart, which paved the way for a conference of the Premiers in the same city two years later. At this conference it was decided to take steps at once to call a convention chosen directly by the electors, for the purpose of framing the Federal Constitution. With this resolution Sir John Forrest, then Premier of Western Australia, disagreed, holding that the draft Commonwealth Bill of 1891 should be first considered by the Parliaments of the various colonies, and any amendments made by them referred to a second convention, to be appointed after a general election. Western Australia, however, fell partially into line with the movement, and on the 27th October, 1896, her Government passed an Enabling Act, by which her representatives were to be elected by the two Houses of Parliament sitting together. Her ten representatives to the Convention of 1897, which commenced its sessions in Adelaide in March, were Sir John Forrest, K.C.M.G., M.L.A. (Premier); Sir James G. Lee Steere (Speaker); Messrs. G. Leake, M.L.A. (Leader of the Opposition); F. H. Piesse, M.L.A. (Commissioner of Railways); J. W. Hackett, M.L.C.; W. T. Loton, M.L.A.; W. H. James, M.L.A.; A. Y. Hassell, M.L.A.; R. F. Sholl, M.L.A.; and J. H. Taylor, M.L.C. The Convention at once applied itself to drafting a Bill to provide for the Federal Constitution. In this Bill a basis was fixed for distributing the surplus revenue of the Commonwealth under the following three periods: (1.) Before the imposition of uniform duties; (2.) for five years after the imposition of uniform duties; (3.) subsequently. For these three periods the distribution agreed upon was as follows;—(1.) During the first period, that is, while the provincial tariffs remained in force, each State was to be credited with the revenue collected in it from Customs and Excise duties, and the performance of the services transferred to the Commonwealth. Each State was to be debited with the expenditure of the Commonwealth in respect of these duties and services, and also with a share, upon a population basis, of the expenditure of the Commonwealth in the exercise of its original powers, the balance then due to each State to be paid monthly.

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(2.) During the first five years after the imposition of uniform duties, expenditure was to be charged in the same way, and revenue was still to be credited to each State on the basis of its contributions. But as with a Federal tariff and intercolonial free-trade, the State in which Customs duty was paid would not necessarily be the State in which the dutiable article was consumed, it was provided that, notwithstanding the abolition of intercolonial tariffs, an account should be kept of imported dutiable articles passing from one State to another, and the duty chargeable thereon should be credited to the consuming State, and not to the State in which the duty was collected. (3.) After that period, all expenditure was to be charged, and all surplus revenue distributed monthly, in proportion to population. On the 22nd of April the Convention was adjourned till the 5th of May, and from that day further till the 2nd September, when the delegates met again in Sydney. Meanwhile the Western Australian Parliament met on the 17th August, and its consideration of the draft Bill led to the formulation of a few amendments. Both Houses asked for a guarantee in respect of the return of surplus revenue to each individual State, and struck out the sliding scale of distribution; whilst for the ultimate basis of distribution the Assembly rejected the *per capita* system in favour of a return in proportion to contributions. The Assembly also proposed to charge the Commonwealth with a proportion of the liabilities on the basis, not of population, but of adult male population. At the Sydney session of the Convention the places of Messrs. Piesse, Loton, Sholl, and Taylor were taken by Messrs. H. Briggs, M.L.C.; F. T. Crowder, M.L.C.; A. H. Henning, M.L.C.; and H. W. Venn, M.L.C. During the discussions it became evident that the opinions, according to the varying interests of the different colonies, were still widely divergent. "At one end of the scale," to quote a well-known account of the proceedings,* "stood New South Wales, with a purely freetrade tariff and a large land revenue; what she feared was, not a deficiency of revenue for provincial purposes, but an unduly large increase of taxation through the Customs. At the other end of the scale stood Western Australia, with a large, unsettled, mining population, and relying almost entirely on Customs duties, a great proportion of which were collected on intercolonial produce. It was recognised that her abnormal position required special treatment, and that no system of general application could meet her needs." The discussions resulted in the opinion that a basis of experience was necessary to guide the future legislators of the Commonwealth in their decisions on this difficult subject, as the conclusions arrived at by statisticians and actuaries were of a somewhat contradictory nature. In the end, indeed, it was left to a Finance Committee to suggest a solution of the problem. On the 24th September the Convention adjourned, to meet for its final session in Melbourne on the 20th January, 1898. This session extended to the 17th March. The Finance Committee recommended the adoption

* "The Annotated Constitution of the Australian Commonwealth," by John Quick LL.D., and R. R. Garran, M.A.

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of the system of "book-keeping" already suggested, for five years and thereafter until the Parliament "should otherwise provide." In other words, the plan proposed was that of 1891, which insured to each State a return of the surplus revenue on the basis of its contributions for five years, leaving the ultimate mode of distribution to be determined by the Parliament. To meet the case of Western Australia, a clause was proposed providing that in the event of a falling off in the proportional amount collected in that colony, as compared with the rest of the Commonwealth, such deficiency should be made good by the Commonwealth. This, however, was not agreed to, but it was decided that Western Australia should be allowed for five years to impose gradually diminishing duties on intercolonial imports. The Draft Bill having been adopted by the Convention, it was at once arranged to submit it to a referendum of the several colonies concerned. In Victoria, South Australia, Queensland, and Tasmania decisive majorities in favour of the Bill were obtained, but in New South Wales the requisite minimum was not attained, whilst the Western Australian Government held aloof for the time being from the movement. At Mr. Reid's request, the Premiers of the six colonies met again in Melbourne on the 29th January, 1899, when Sir John Forrest unsuccessfully asked for certain concessions to be made to his colony. Some amendments were then introduuced into the Draft Bill, which satisfied the people of New South Wales, and a second referendum being taken in that colony, the adoption of the Bill was secured. In July, 1899, the Draft Constitution Bill was submitted to the Western Australian Parliament, and referred to a Select Committee of the Legislative Assembly. This committee, on the 19th September, reported that before the colony could safely join the Commonwealth, four amendments in the Constitution Bill were necessary: (1.) That the colony should be enabled to divide itself into electorates for the election of Senators: (2.) That the Federal Parliament should be empowered to authorise the construction of a transcontinental railway; (3.) That for five years after the adoption of the Federal Tariff Western Australia should be allowed to impose her own Customs duties on intercolonial and other imports; (4.) That Western Australia should be exempted for five years from the jurisdiction of the Interstate Commission. The Government then proposed to submit to the electors both the Bill as adopted by the Premiers' Conference, and the Bill with the Western Australian Amendments, and this proposal was carried by the Legislative Assembly. In the Legislative Council, however, no agreement of any kind was arrived at, and thus the submission of the Bill to the people was for the time being postponed. On this an agitation was almost immediately commenced on the Goldfields to obtain a separation from the parent colony for the Goldfields and other districts, with a view to forming a new colony which would be enabled to join the Commonwealth. The movement began with a meeting at Kalgoorlie on the 3rd of January, 1900, when a resolution was passed that a petition should be presented to Her Majesty the Queen praying her to exercise the prerogative of the Crown, under which power is given to divide

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any colony where necessary, and to grant a separate Government to those districts which wished to secede from the parent colony. Sir John Forrest attended the Conference of Premiers in Sydney on the 24th of January, 1900, where, after some discussion, he relinquished three of the amendments, but insisted on retaining the one which provided for five years' liberty to impose intercolonial Customs duties. The fact, however, that the Constitution was now a compact, to the terms of which the people of five colonies had given their approval, prevented the other Premiers from considering the possibility of making the desired concession. In the meantime, the scheme of Federation had been placed before the Imperial Government, and on the 22nd of December, 1899, Mr. Chamberlain, the Secretary of State for the Colonies, in a telegraphic despatch to Earl Beauchamp, the Governor of New South Wales, had expressed the hope that delegates from each of the colonies which desired to Federate would visit England, and be present when the Commonwealth Bill was submitted to the Imperial Parliament. This proposal was duly discussed at the Premiers' conference, and it was arranged that Mr. Edmund Barton (N.S.W.), Mr. Alfred Deakin (Vic.), Mr. J. R. Dickson (Q.), and Mr. C. C. Kingston (S.A.), should proceed to London, where Sir Philip O. Fysh (Tas.) was to join them. The Government of Western Australia expressed a desire to be also represented, and, with the concurrence of the Secretary of State, despatched Mr. S. H. Parker, Q.C., who left for England on the 18th February. On the 27th March Mr. W. P. Reeves, the Agent General for New Zealand, informed the Colonial Office that he had been appointed a delegate for that colony, and on the 30th March he forwarded a memorandum of the amendments desired by New Zealand. On the same day Mr. Parker forwarded to the Colonial Office a memorandum of the amendment asked for by his colony, namely, that Western Australia should be empowered, for five years after the adoption of the Federal tariff, to receive the same Custom duties as were in force at the passing of the Commonwealth Act, such duties to be collected by the Commonwealth. On the 5th April a conference took place at the Colonial Office, at which Mr. Chamberlain presided, and the delegates from all the seven colonies were present. Mr. Parker, after defending the amendment proposed by his Government, withdrew from the conference. The Imperial Government urged several objections to the Constitution Bill, but one by one they were abandoned, with the exception of that relating to Clause 74, which provided that there should be no appeal to the Privy Council on Australian questions involving the interpretation of the Constitution, as this was considered to be a restriction of the right of appeal to the Privy Council. On this point the conference could not agree, and Mr. Chamberlain, consequently, telegraphed the state of affairs to the Premiers of the Colonies, who decided to meet in Melbourne for the purpose of discussing the difficulty that had arisen. They met on the 19th April, and came to the conclusion that, as the Draft Bill had been sanctioned by a referendum, they had no power to amend it on such important points.

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In Western Australia, meanwhile, the separation petition had been drawn up, and, with a roll of 27,733 signatures, was forwarded to the Government on the 17th of March. A further petition from Albany, praying for the inclusion of that district in the proposed new colony, was also presented. Meanwhile Sir John Forrest continued to urge the claims of Western Australia to indemnity for the commercial losses which it was anticipated Federation would entail. Correspondence had previously passed between him and Mr. Holder, the Premier of South Australia, on the subject of the transcontinental railway, in which the latter expressed the opinion that it was unlikely that South Australia would withhold her consent to its construction, and undertook, in the event of the establishment of Federation, and the inclusion of both colonies as States of the Commonwealth, to pass a Bill assenting to the line, stage by stage, simultaneously with the passing of a like Bill in Western Australia. On the 27th April, Mr. Chamberlain telegraphed to Sir Alexander Onslow, who was then administering the government, pointing out the difficulty which would be experienced in embodying, at this stage, the proposed amendment in the Constitution Bill. He urged the Government of the colony to at once join the Commonwealth, pointing out that if she did not come in as an original State, she would probably lose the benefit of the clause protecting her from immediate financial loss. He also dwelt emphatically on the possibility of separation being granted to the goldfields districts, in case the colony stood out of the Federation. Sir Alexander Onslow replied that Parliament had been summoned for the 17th May, when the Premier would at once introduce an Enabling Bill to provide for the submission of the Commonwealth Bill to the people. In London, meanwhile, the delegates of the Eastern colonies continued, though unsuccessfully, to urge the Imperial Government to accept the Bill as it stood. On the 14th May Mr. Chamberlain introduced the Bill into the House of Commons, with amendments, including that of Clause 74. As the result of further interviews between Mr. Chamberlain and the delegates, a compromise was effected, which resulted in a modification of the amendments. In Australia, however, the compromise was received with general disapproval. On the 14th June, the Premiers of some of the colonies sent a joint telegram to Mr. Chamberlain, stating that opinion throughout Australia was strongly opposed to subjecting the right of appeal to the consent of the Executive Government, as was now suggested, and urging the reconsideration of the proposal to pass the Bill without amendment. On the 16th June, Mr. Chamberlain resolved to make a further concession, and submitted Clause 74 as it now stands. This was accepted, and at last all obstacles on both sides were removed. The Bill passed both Houses of the Imperial Parliament without amendment, and received the Royal Assent on 9th July. New Zealand had finally decided to stand out, but arrangements had been made in Western Australia for the submission of the question to a referendum. Parliament met on the 17th May, and the Enabling Bill was introduced. On the 23rd May, Sir John Forrest moved its

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second reading, and announced that he would personally vote for Federation, though he did not see that it would be any great benefit to Western Australia for some time. The Bill, as introduced, provided for a referendum on the basis of the existing electoral rolls; but, during the debate, the Government consented to have it taken in accordance with the newly-extended franchise, under which all adults, men and women, who had been 12 months in the colony were entitled to vote. The second reading was carried without a division on the 31st of May; on the 7th June, the Bill passed the Legislative Council, and on the 13th June it was assented to. The date of the referendum was fixed for the 31st July. The West Australian Federal League, of which the Leader of the Opposition in the Legislative Assembly, Mr. George Leake, was president, at once threw all its energy into the advocacy of union with the other colonies. The Federalists promised that innumerable advantages would accrue from joining the Commonwealth, whilst the Anti-federalists, who were largely represented in the agricultural districts, drew a gloomy picture of the effect the measure would probably have on all rural industries. Between these conflicting opinions, it is probable that the large majority of people were, more than by anything else, swayed by the sentiment of union, while the other reasons urged, the impending danger of separation included, loomed behind as uncertain, disputable possibilities. The result of the poll was an affirmative majority of 25,109—namely, 44,800 for Federation and 19,691 against. In the metropolitan electorates, 7,008 voted for, 4,380 against Federation; in the Fremantle electorates, the respective numbers were 4,687 and 3,141; in the goldfields electorates, 26,330 and 1,813; whilst in the electorates that have been described as the country districts—namely, Albany, Ashburton, Beverley, Bunbury, Canning, De Grey, Gascoyne, Geraldton, Greenough, Irwin, Kimberley East, Kimberley West, Moore, Murchison, Murray, Nelson, Northam, Plantagenet, Roebourne, Sussex, Swan, Toodyay, Wellington, Williams, and York—the votes were 6,775 for, and 10,357 against.

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The following tables give complete particulars of the voting in Western Australia, and an analysis of the entire vote of Australasia, on Federation :—

Particulars of the Polling at the Referendum held on the 31st July, 1900, pursuant to "The Australasian Federation Enabling Act, 1900."

Electoral District.	No. of Persons who voted.			No. of Votes cast.		Majority.		Informal Votes.
	Males.	Females.	Total.	For.	Against.	For.	Against.	
Albany	569	412	981	914	67	847	...	1
Ashburton	90	6	96	60	36	24	...	
Beverley	330	171	501	86	415	...	329	
Bunbury	799	496	1,295	493	802	...	309	
Canning	597	317	914	405	509	...	104	
Coolgardie	3,312	1,191	4,503	4,337	166	4,171	...	2
Coolgardie, East ...	10,381	1,853	12,234	11,502	732	10,770	...	6
Coolgardie, North ...	2,306	489	2,795	3,715	117	3,598	...	4
Coolgardie, N'th-East	3,298	534	3,832	2,655	140	2,515	...	1
DeGrey	90	5	95	80	15	65	...	
Dundas	646	200	846	816	30	786	...	1
Fremantle	627	182	809	532	277	255	...	
Fremantle, East ...	1,342	784	2,126	1,322	804	518	...	1
Fremantle, North ...	1,177	790	1,967	1,289	678	611	...	2
Fremantle, South ...	2,021	905	2,926	1,544	1,382	162	...	1
Gascoyne	105	38	143	66	77	...	11	...
Geraldton	606	327	933	254	679	...	425	1
Greenough	244	185	429	18	411	...	393	
Irwin	214	130	344	34	310	...	276	
Kimberley, East ...	57	4	61	60	1	59	...	...
Kimberley, West ...	115	16	131	97	34	63	...	
Moore	328	200	528	65	463	...	398	
Murchison	167	89	256	27	229	...	202	
Murchison, Central...	676	166	842	777	65	712	...	
Murchison, North ...	638	42	680	597	83	514	...	
Murchison, South ...	1,073	154	1,227	1,008	219	789	...	2
Murray	814	329	1,143	469	674	...	205	1
Nelson	688	201	889	402	487	...	85	1
Northam	994	432	1,426	593	833	...	240	1
Perth	2,718	996	3,714	2,386	1,328	1,058	...	2
Perth, East	1,162	786	1,948	1,128	820	308	...	1
Perth, North... ...	1,380	880	2,260	1,416	844	572	...	2
Perth, West	2,388	1,078	3,466	2,078	1,388	690	...	3
Pilbara	313	4	317	308	9	299	...	
Plantagenet	508	166	674	447	227	220	...	
Roebourne	98	18	116	98	18	80	...	...
Sussex	469	251	720	246	474	...	228	
Swan	1,163	593	1,756	852	904	...	52	1
Toodyay	402	251	653	75	578	...	503	
Wellington	942	334	1,276	581	695	...	114	2
Williams	690	273	963	214	749	...	535	
Yalgoo	218	51	269	155	114	41	...	
Yilgarn	496	102	598	460	138	322	...	
York	480	329	809	139	670	...	531	1
Total	47,731	16,760	64,491	44,800	19,691	25,109	...	58

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Analysis of the Vote of Australasia on "The Australasian Federation Enabling Act, 1900."

(Compiled by the Officer in Charge of Electoral matters.)

Name of Colony.	Commonwealth Referendum.				Approximate number of persons qualified to vote.	Percentage of Votes recorded to total number of persons qualified to vote (exclusive of informal votes).		
	Date.	Yes.	No.	Total.		Yes.	No.	Total.
						%	%	%
New South Wales	20-6-1899	107,420	82,741	190,161	300,000	35·81	27·58	63·39
Victoria	27-7-1899	152,653	9,805	162,458	288,600	52·89	3·40	56·29
Tasmania	27-7-1899	13,437	791	14,228	39,002	34·45	2·03	36·48
South Australia, Province ..	29-4-1899	65,99	17,053	83,043	152,554	43·26	11·18	54·44
Do. Northern Territory	6-5-1899							
Queensland	2-10-1899	38,488	30,996	69,484	107,265	35·88	28·90	64·78
Western Australia	31-7-1900	44,800	19,691	64,491	96,065	46·63	20·50	67·13
Total	...	422,788	161,077	583,865	983,486	42·99	16·38	59·37

And thus Western Australia having decided to throw in her lot with the other Colonies, the Commonwealth union became an established fact. Sir John A. Cockburn, one of the most ardent advocates of federation, has summarised the functions of the Commonwealth in the following words:—"The ruling principle on which the allocation of powers has been conducted is to vest in the central authority those functions only which are incapable of individual exercise, and for whose efficient performance joint action is necessary. External relations are regarded as essentially of federal concern; so that though there may be many voices as between the States, the pronouncement of the Commonwealth shall be definite and coherent." And further: "Absolute freedom of trade is secured by the inclusion of trade and commerce. This is the goal towards which the federal efforts of the past ten years have been chiefly directed." The principal matters with which the Commonwealth has power to deal are naval and military defence, quarantine, lighthouses, naturalisation, immigration, postal, telegraphic, and telephonic services, currency and coinage, insolvency, patents, copyrights, marriage, census and statistics, astronomical and meteorological observations, etc. As regards the much-discussed transcontinental railway, Sir John Cockburn says: "The construction of an overland communication is a necessity, both from the points of view of internal development and common defence." Already the State Government has taken the necessary preliminary steps, so far as it is concerned, towards the realisation of this scheme, as the Trans-Australian Railway Enabling Bill was passed by the Legislative Council of Western Australia on the 24th September, 1903.

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The date selected for the establishment of the Commonwealth was the 1st of January, 1901. On the 2nd December, 1900, Lord Hopetoun, the Governor General elect of the federated States, arrived in Australia, and the inauguration of the union took place in Sydney on the first day of the new century. It had been officially announced on the 17th September, 1900, that the Queen, on the recommendation of Lord Salisbury, had assented to a visit by the Duke and Duchess of York to Australia early in 1901, when the Duke of York would be commissioned by Her Majesty to open the first session of the Commonwealth Parliament in her name.

It now remained to take those steps which were necessary to carry out the measures laid down in the Constitution. The management of the federal Customs was taken over from the States on the 1st of January, 1901. The Postal and Telegraphic and Defence Departments followed on the 1st of March. Mr. Barton, who formed the first Federal Ministry, asked Sir John Forrest to join him as Postmaster General. Afterwards, however, Sir John was offered the portfolio of Defence, and on the 1st of March he assumed the control of the Australian Defence Forces. The election of members of the two Houses of the Commonwealth Parliament took place in March. Each of the six States is represented by six senators in the Upper House, the State forming in each instance a single electoral district. The following gentlemen were elected by the people of Western Australia as their representatives in the first Federal Senate:—

De Largie, Hugh
Ewing, Norman Kirkwood
Harney, Edward Augustine
Matheson, Alexander Perceval
Pearce, George Foster
Smith, Miles Staniforth Cater.

The House of Representatives consists of 75 members, five of whom are sent by Western Australia. Under the provisions contained in 64 Victoriæ, No. 6, this State was divided for the purpose of the Federal elections into the following five electorates, each comprising certain of the existing State electoral districts, as defined in the Constitution Act Amendment Act of 1899 (63 Vic., No. 19):—

1. COOLGARDIE, comprising:—Coolgardie, Cue, East Kimberley, West Kimberley, Mount Burges, Mount Magnet, Mount Margaret, Menzies, North Murchison, Pilbara, and Yilgarn.

2. FREMANTLE, comprising:—Claremont, Cockburn Sound, Fremantle, East Fremantle, North Fremantle, South Fremantle, Murray, and South Perth.

3. KALGOORLIE, comprising:—Boulder, Dundas, Hannans, Kalgoorlie, and Kanowna.

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4. SWAN, comprising:—Albany, Beverley, Bunbury, Gascoyne, Geraldton, Greenough, Irwin, Moore, Murchison, Nelson, Northam, Plantagenet, Roebourne, South-West Mining, Sussex, Swan, Toodyay, Wellington, Williams, and York.

5. PERTH, comprising:—Guildford, Perth, East Perth, North Perth, West Perth, and Subiaco.

The first representatives elected for this State were:—

Forrest, Rt. Hon. Sir John, P.C., G.C.M.G., Minister of State for Defence	Swan
Fowler, James Mackinnon	Perth
Kirwan, John Waters	Kalgoorlie
Mahon, Hugh	Coolgardie
Solomon, Elias	Fremantle

Subject to the disqualifications hereafter set out, all persons not under 21 years of age, whether male or female, married or unmarried—

(*a*.) Who have lived in Australia for six months continuously; and

(*b*.) Who are natural-born or naturalised subjects of the King; and

(*c*.) Whose names are on the Electoral Roll for any Electoral Division—

are entitled to enrolment and to vote at the Election of Members of the Federal Senate and House of Representatives.

No person who is of unsound mind, and no person attainted of treason, or who has been convicted and is under sentence, or subject to be sentenced for any offence punishable under the law of any part of the King's dominions by imprisonment for one year or longer, is entitled to vote at any Election of Members of the Senate or the House of Representatives.

No aboriginal native of Australia, Asia, Africa, or the Islands of the Pacific, except New Zealand, is entitled to have his name placed on an Electoral Roll, unless so entitled under Section 41 of the Constitution.

Section 41 of the Constitution.—"No adult person who has or acquires a right to vote at elections for the more numerous House of the Parliament of the State is, while the right continues, prevented by any law of the Commonwealth from voting at elections for either House of the Parliament of the Commonwealth."

No person is entitled to vote more than once at the same election.

A Commonwealth Electoral Officer for the State of Western Australia is stationed in Perth, and Divisional Returning Officers for the five Electoral Divisions are stationed at the following places:—

1. Andrew Thomson ...	... Coolgardie	... Post-office, Coolgardie
2. Robert Fairbairn ...	... Fremantle	... Fremantle
3. Edwin P. Dowley ...	... Kalgoorlie	... Kalgoorlie
4. Augustus William Piesse	... Perth	... G.P.O., Perth
5. William D. Cowan ...	... Swan	... Post-office, Northam

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The Senate is elected for a period of six years; the House of Representatives, for three years.

The qualifications of a Senator, or of a member of the House of Representatives, are as follows:—

1. He must be of the full age of twenty-one years, and must be an elector entitled to vote at the election of members of the House of Representatives, or a person qualified to become such elector, and must have been for three years at the least a resident within the limits of the Commonwealth as existing at the time when he is chosen:

2. He must be a subject of the King, either natural-born or for at least five years naturalised under a law of the United Kingdom, or of a Colony which has become or becomes a State, or of the Commonwealth, or of a State.

Any person who—

1. Is under any acknowledgment of allegiance, obedience, or adherence to a foreign power, or is a subject or a citizen, or entitled to the rights or privileges of a subject or a citizen of a foreign power; or

2. Is attainted of treason, or has been convicted and is under sentence, or subject to be sentenced, for any offence punishable under the law of the Commonwealth or of a State by imprisonment for one year or longer; or

3. Is an undischarged bankrupt or insolvent; or

4. Holds any office of profit under the Crown, or any pension payable during the pleasure of the Crown out of any of the revenues of the Commonwealth; or

5. Has any direct or indirect pecuniary interest in any agreement with the public service of the Commonwealth, otherwise than as a member and in common with the other members of an incorporated company consisting of more than twenty-five persons—

is incapable of being chosen or of sitting as a senator or as a member of the House of Representatives.

No person who is at the date of nomination, or who was at any time within fourteen days prior to the date of nomination, a member of the Parliament of a State, is capable of being nominated as a Senator, or as a member of the House of Representatives.

On the 9th of May the Commonwealth Parliament was opened, in Melbourne, by the Duke of York. Their Royal Highnesses the Duke and Duchess of York subsequently, on their return voyage, visited Western Australia, where they arrived on the 20th July, and received an enthusiastic welcome, the celebrations extending over a whole week.

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The first Governor General of the Commonwealth, the Right Honourable the Earl of Hopetoun, G.C.M.G., visited Western Australia for the first time in December, 1901.

On the 17th April, 1903, Senator Ewing resigned his seat in the Commonwealth Parliament, and on the 29th July Mr. Henry John Saunders was elected to fill the vacant position.

The position of Minister of State for Home Affairs in the second Federal Ministry was accepted by Sir John Forrest on the 24th day of September, 1903.

The second general election of members of the Commonwealth Parliament took place on the 16th December, 1903. For the Senate, Messrs. De Largie, Harney, and Saunders had to retire. Mr. De Largie was re-elected; and the two new members elected were Messrs. John William Croft and George Henderson. For the House of Representatives, Sir John Forrest and Messrs. Fowler and Mahon were re-elected; and the two new members elected were Messrs. William Henry Carpenter (Fremantle) and Charles Edward Frazer (Kalgoorlie).

The following figures relative to the election have been furnished by the Commonwealth Electoral Officer for the State:—

Electors in Western Australia for the Commonwealth Parliament, on 16th December, 1903.

Divisions.	No. of Electors on Rolls.			No. of Electors who voted for the Senate.				No. of Electors who voted for the House of Representatives.			
	Males.	Females.	Total.	Males.	Females.	Informal.	Total.	Males.	Females.	Informal.	Total.
Perth ...	14,851	12,254	27,105	4,484	1,357	359	6,200	4,482	1,357	354	6,193
Fremantle	11,063	8,428	19,511	4,442	1,375	470	6,287	4,931	1,382	408	6,021
Kalgoorlie	15,566	7,642	23,208	7,125	1,405	489	9,019	7,285	1,448	295	9,028
Coolgardie	16,962	4,724	21,686	5,345	814	420	6,579	No contest.			
Swan ...	16,292	9,140	25,432	3,933	1,091	263	5,287	No contest.			
	74,754	42,188	116,942	25,329	6,042	2,001	33,372	...	...	...	...

Applications for recording postal votes were received from 320 male and 50 female electors, and 331 postal votes were recorded, 10 of which were informal.

Votes of absent voters, under the provisions of Clause 139, Subsection 3, of the "Commonwealth Electoral Act, 1902," were recorded to the number of 622, of which number 91 were informal, the remainder being the votes of 471 male and 60 female electors.

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The Deakin Ministry resigned on the 22nd April, 1904, and was succeeded by the Watson Ministry, the third of the Federal Ministries. In it Mr. Hugh Mahon, the member for Coolgardie, held a portfolio as Postmaster General. Mr. Watson's Ministry was succeeded by the Ministry formed by Mr. Reid on the 18th August.

The control of matters relating to immigration was taken over by the Commonwealth Government on the 31st December, 1901; that of the naturalisation of foreigners on the 1st January, 1904. The granting of patents has been similarly controlled since the 1st June, 1904. The High Court of Justice of Australia was established in 1903, the Judges taking the oath before the Governor General on the 5th October of that year. The Court sat for the first time in Melbourne on the 6th of the same month, and in Perth on the 2nd of the following December.

2.—GOVERNORS OF WESTERN AUSTRALIA.

The following is a list of the Governors and Acting Governors of Western Australia, with the dates of their assumption of and retirement from Office:—

Name.	From	To
Captain James Stirling, R.N., Lieut.-Governor, Commander-in-Chief, and Vice-Admiral	30th Dec., 1828*a*	Sept., 1832
Captain Frederick Chidley Irwin, Lieut.-Governor, etc.	Sept, 1832 ...	Sept., 1833
Captain Richard Daniell, Lieut.-Governor, etc.	Sept. 14, 1833 ...	May, 1834
Captain Picton Beete, Lieut.-Governor, etc.	May 11, 1834 ...	May, 1834
Captain Richard Daniell, Lieut.-Governor, etc.	May 24, 1834 ...	Sept., 1834
Captain Sir James Stirling, Governor, etc.	Sept. 19, 1834 ...	Jan., 1839
John Hutt, Esq., Governor, etc.	Jan. 3, 1839 ...	Jan., 1846
*Lieut.-Colonel Andrew Clarke, K.H., Governor, etc.	Jan. 27, 1846 ...	Feb., 1847
Lieut.-Colonel Frederick Chidley Irwin, Governor, etc.	Feb. 12, 1847 ...	Aug., 1848
Captain Charles Fitzgerald, R.N., Governor, etc.	Aug. 12, 1848 ...	July, 1855
Arthur Edward Kennedy, Esq., Governor, etc.	July 23, 1855 ...	Feb., 1862
Brevet-Lieut.-Colonel Jno. Bruce, Acting-Governor, etc.	Feb. 20, 1862 ...	Feb., 1862
John Stephen Hampton, Esq., Governor, etc.	Feb. 28, 1862 ...	Nov., 1868
Lieut.-Colonel Jno. Bruce, Acting-Governor, etc.	Nov. 2, 1868 ...	Sept., 1869
Frederick Aloysius Weld, Esq., Governor and Commander-in-Chief	Sept. 30, 1869 ...	Jan., 1875

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Name.	From	To
William Cleaver Francis Robinson, Esq., C.M.G., Governor, etc.	Jan. 11, 1875 ...	Sept., 1877
Lieut.-Colonel Edward Douglas Harvest, Acting-Governor, etc.	Sept. 7, 1877 ...	Nov., 1877
†Major-General Sir Harry St. George Ord, R.E., K.C.M.G., C.B., Lieut-Governor, etc.	Nov. 12, 1877 ...	April, 1880
Sir William Cleaver Francis Robinson, K.C.M.G., Governor, etc....	April 10, 1880 ...	Feb., 1883
Henry Thomas Wrenfordsley, Esq., Administrator, etc.	Feb. 14, 1883 ...	June, 1883
Sir Frederick Napier Broome, K.C.M.G., Governor, etc.	June 2, 1883 ...	Nov., 1884
Alexander Campbell Onslow, Esq., Administrator, etc.	Nov. 13, 1884 ...	June, 1885
Sir Frederick Napier Broome, K.C.M.G., Governor, etc.	June 16, 1885 ...	Dec., 1889
Sir Malcolm Fraser, K.C.M.G., Administrator, etc.	Dec. 21, 1889 ...	Oct., 1890
Sir William Cleaver Francis Robinson, G.C.M.G., Governor, etc....	Oct. 20, 1890 ...	Sept., 1891
Alexander Campbell Onslow, Esq., Administrator, etc.	Sept. 21, 1891 ...	July, 1892
Sir William Cleaver Francis Robinson, G.C.M.G., Governor, etc.	July 9, 1892 ...	March, 1895
Sir Alexander Campbell Onslow, Kt., Administrator, etc.	March 18, 1895...	23rd Dec., 1895
Sir Gerard Smith, K.C.M.G., Governor, etc.	Dec. 23, 1895 ...	June, 1900
Sir Alexander Campbell Onslow, Kt., Administrator, etc.	March 23, 1900...	March, 1901
Edward Albert Stone, Esq., Administrator, etc.	March 4, 1901 ...	April, 1901
Hon. Sir Arthur Lawley, K.C.M.G., Governor, etc.	May 1, 1901 ...	Aug., 1902
Sir Edward Albert Stone, Kt., Administrator	Aug. 14, 1902 ...	March, 1903
Admiral Sir Frederick George Denham Bedford, G.C.B., Governor	March 24, 1903...	Still in office

3.—EARLY CONSTITUTION.

Captain Stirling, the Superintendent of the First Colonising Expedition, was, before leaving England in February, 1829, appointed Lieutenant-Governor, although no commission was actually issued to him until the 4th March, 1831; and a promise was made that a Bill would be submitted to Parliament to make provision for the Civil Government of the New Settlement, which promise was duly fulfilled, when, on the 14th May, 1829, The 10th George IV., No. XXII., "*An Act to provide until the thirty-*

a. Letter of Appointment issued 30th December, 1828: first Commission granted 4th March, 1831. * Died, 11th February, 1847. † Appointed Governor and Commander-in-chief, 30th January, 1878.

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"*first day of December, 1834, for the Government of His Majesty's* "*Settlement in Western Australia, on the Western coast of New* "*Holland,*" received the Royal assent.

The following is a list of the names of the first Officials appointed:—

Secretary to Government	Peter Brown.
Surveyor	John Septimus Roe, Lt., R.N.
Assistant Surveyor	H. C. Sutherland.
Harbour Master	Captain Mark Currie, R.N.
Deputy Harbour Master and Pilot ...	Daniel Scott.
Superintendent of Government Farms, Gardens, and Plantations	James Drummond.
Superintendent of Government Stock ...	George W. Mangles.
Storekeeper...	John Morgan.
Civil Engineer	H. W. Reveley.
Registrar	William Stirling.
Surgeon	Charles Simmonds, M.D.

On the 8th June, 1829, the Lieutenant-Governor issued a warrant for the establishment of a Board of Commissioners, who should examine into and report upon such matters as might be referred to it relative to the management of the property of the Crown, and of public property within the settlement; and for the purpose of auditing and passing all public accounts; and for the purpose of demanding, receiving, and duly apportioning all fines, fees, forfeitures, accruing or becoming due to the Government, which board, as first constituted, consisted of Captain Mark J. Currie, as Presiding Commissioner; and Commissioners Lieutenant J. S. Roe and Mr. William Stirling, the latter acting as Secretary *pro tem.*; it was called the Board of Council and Audit, and provision was made for the number of Commissioners being increased as circumstances might make it necessary.

On the 18th June, 1829, a Proclamation was issued stating that, possession having been taken of the territory, and settlement being actually effected, all persons were required to regulate their conduct with reference to His Majesty's authority represented in the Governor, and to obey all such legal commands and regulations as he might from time to time see fit to enact; and, further, that by the establishment of the Royal authority, the territory became subject to the laws of the United Kingdom, as far as they were applicable to the circumstances of the case.

The Proclamation made provision for the appointment of a Sheriff and his officers, and also of justices of the peace.

Notice was given that persons behaving in a fraudulent, cruel, or felonious manner towards the aboriginal natives were, on conviction, liable as if the same had been committed against any other of His Majesty's subjects.

Compulsory service in the Militia for all males between the ages of 15 and 50 was commanded.

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The conditions under which lands could be obtained were to be exhibited at the offices of the Secretary to Government and Surveyor-General.

And, further, all persons were required, as soon as practicable after their arrival in the settlement, to obtain permission to reside there, as persons residing in the settlement without permission rendered themselves liable to be committed to custody; and no persons were allowed to quit the settlement without giving a week's notice of their intention to do so.

Executive Council.

By an Order in Council, dated the 1st November, 1830, the first Executive Council was constituted.

The Order set forth "That the Governor for the time being "of the said Settlements of Western Australia, or the Officer "administering the Government thereof, the Senior Officer of His "Majesty's Land Forces next in command, the Colonial Secretary "of the said Territory for the time being, the Surveyor General "thereof for the time being, and the Advocate General thereof "for the time being, so long as they shall respectively be resident "in the said Settlements, or any three of them, of whom the Acting "Governor shall be one, shall have authority and power to make, "ordain, and establish all such Laws and Ordinances, and to con-"stitute such Courts and Officers as may be necessary for the peace, "order, and good government of His Majesty's subjects, and others "within the Settlements," subject, however, to the Royal prerogative of disallowance; and the order went on to state, "that no such "Law or Ordinance shall be made unless the same shall have been "first proposed by the said Governor or Officer administering the "Government"; and, further, that no Court of Justice was to be constituted, except by a Law or Ordinance which had received the Royal assent.

The first Executive Council appointed consisted of—

Captain James Stirling, R.N. (Governor)	President.
Captain Frederick Chidley Irwin ...	Commandant.
Peter Brown	Colonial Secretary.
John Septimus Roe, Lt., R.N.	Surveyor General.
George Fletcher Moore...	Advocate General.

In the constitution of the Executive Council, as set forth in the Order in Council of November, 1830, no change took place until June, 1847, when, under the authority of a Royal Order in Council, the Collector of Revenue was appointed an Executive officer.

On the 5th of June, 1852, it was officially notified that Her Majesty the Queen had been graciously pleased to appoint the Comptroller General of Convicts to be a member of the Executive.

In 1855, as the Royal instructions to Governor Kennedy did not include the senior officer in command of the troops as a member of the Executive Council, Lieutenant-Colonel Bruce, who

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at the time held that appointment, ceased to hold office from the 21st July; but, the omission having been rectified, he was re-appointed a member on the 28th December in the same year.

By Order of the Queen in Council, dated 3rd April, 1871, the Executive Council was remodelled. The Governor remained President, the Colonial Secretary, the Attorney General, the Senior Officer in command of the Land Forces, and the Surveyor General retained their seats, whilst those of the Comptroller General and Collector of Revenue were abolished.

Under the Royal Instructions of 4th July, 1878, the Governor was further authorised and empowered "to appoint, in addition to the *ex officio* members, such persons as he may think fit to be Unofficial Members of our said Executive Council, but so that the number of such Unofficial Members shall never exceed the number of two." Every such appointment was, however, to be provisional only until the same was approved of by the Queen, and could be revoked at any time by Royal Warrant, and such Unofficial Members were to take rank after the Official Members of the Executive Council, and, as between themselves, according to the order of their appointment.

The Governor was also directed and enjoined to attend and preside at the meetings of the Council unless prevented by some necessary or reasonable cause, when, unless he specially appointed some particular member, the Senior Member present was to preside.

In February, 1879, Mr. J. H. Thomas, who then held the position of Director of Public Works and Commissioner of Railways, was provisionally appointed an unofficial member of the Executive, the appointment being changed to that of an official member during the following May.

By the additional Royal Instructions of the 8th April, 1879, it was laid down that the Executive Council was to comprise "so many persons in Our Service (not exceeding six in number at any one time) as the Governor shall from to time appoint to be members of the said Council by Instruments under the Public Seal of the Colony. All such persons shall be styled Official Members, and the persons discharging the functions of the offices hereunder mentioned shall, if so appointed, take precedence and seniority in the order in which the said officers are named: that is to say:—

Colonial Secretary.
Attorney General.
Senior Military Officer in Command of Our Troops within the Colony, not being below the rank of Lieutenant-Colonel.
Treasurer and Collector of Internal Revenue.

Official members discharging the functions of any other offices shall take precedence and seniority after the foregoing officers, and amongst themselves according to the date of their respective appointments."

The section of the original Instructions of the 4th July, 1878, relating to the appointment of two "Unofficial Members" still remained in force.

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The officers first appointed were:—

The Governor (President).
The Colonial Secretary.
The Attorney General.
The Senior Military Officer Commanding Her Majesty's Troops.
The Surveyor General and Commissioner of Crown Lands.
The Director of Public Works and Commissioner of Railways.

On the 3rd November, 1879, the officer holding the appointment of Colonial Treasurer and Collector of Internal Revenue was appointed to a seat as an official member of the Council.

Since 1880, when Lieut.-Colonel E. D. Harvest left the Colony, the office of Commandant was not represented in the Executive.

On the 5th August, 1884, Mr. James G. Lee Steere was provisionally appointed an unofficial member of the Council, subject to Her Majesty's pleasure, the appointment being subsequently confirmed by a despatch from the Colonial Office dated 9th November, 1884.

The Executive Council, therefore, previous to the adoption of Responsible Government on the 21st October, 1890, was composed of:—

The Governor (President).
The Colonial Secretary.
The Attorney General.
The Colonial Treasurer.
The Surveyor General or Commissioner of Crown Lands.
The Director of Public Works and Commissioner of Railways.
One unofficial member.

Legislative Council.

On December the 29th, in the year 1831, was published an Order of the King in Council, for the establishment of a Legislative Council in Western Australia.

The Legislative Council, as at first constituted, consisted solely of the members of the Executive Council, viz.:—

The Governor, Sir James Stirling.
The Commandant, Captain F. C. Irwin.
The Colonial Secretary, Peter Brown.
The Surveyor General, John Septimus Roe.
The Advocate General, George Fletcher Moore.

On the 3rd January, 1839, under the authority of a Royal Order in Council, four unofficial nominee members were added to the list, the gentlemen appointed being:—

W. L. Brockman,
George Leake,
Thomas Peel,
William Tanner.

In June, 1847, the Collector of Revenue was added to the *ex officio* members of the Legislative Council.

In 1868, under an Order by the Queen in Council, the Legislative Council was increased to six official, and six semi-elective

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unofficial members, the latter nominated for appointment by the districts they represented.

By a notice dated the 7th July, 1868, it was notified for general information in the *Government Gazette* that, "By an Order in Council made at the Court at Windsor the 14th May, 1868, Her Most Gracious Majesty the Queen, with the advice of Her Privy Council, did order that the Orders in Council respectively bearing date the 20th March, 1857, the 3rd March, 1859, and the 11th October, 1861, under which the late Legislative Council was constituted, should be, and the same are, thereby revoked; and that—

The Governor for the time being of the Colony of Western Australia, or the Officer administering the Government thereof,
The Senior Officer for the time being Commanding Her Majesty's Land Forces in the said Colony,
The Colonial Secretary of the said Colony for the time being,
The Surveyor General of the said Colony for the time being,
The Attorney General of the said Colony for the time being, and
The Treasurer and Collector of Internal Revenue of the said Colony for the time being; and
John Wall Hardey,
Julian George Charles Carr,
Walter Bateman,
James George Lee Steere,
William Locke Brockman, and
Samuel Pole Phillips, Esquires.

should be, and the same are, thereby constituted a Legislative Council within the said Colony, with the Powers and subject to the conditions and restrictions therein contained; and that the appointment of the above Non-Official Members of such Council should be for a period not exceeding three years. The above appointments to take effect from the date of this notice."

In August, 1870, the nominee Legislative Council was dissolved by the issue of writs under 33 Vict., No. 13, for the election of a Legislative Council, to consist of twelve elected and six nominated members, the latter to consist of three official nominee and three unofficial nominee members; the Council to be presided over by a Speaker. The elections took place in the month of October, and resulted in the Council eventually consisting of the following members:—

Official Nominees—

Colonial Secretary	Fred. P. Barlee.
Attorney General	R. J. Walcott.
Surveyor General	M. Fraser.

Unofficial Nominees—

S. P. Phillips.
M. Brown.
W. E. Marmion.

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ELECTED MEMBERS—

Perth	J. G. C. Carr (Chairman of Committees).
"	Luke S. Leake (Speaker).
Fremantle	E. Newman.
"	W. D. Moore.
Geraldton	Major Logue.
York	J. H. Monger.
Toodyay...	Jas. Drummond.
Swan	Thos. C. Gull.
Greenough	George Shenton.
Wellington	Jas. G. Lee Steere.
Vasse	J. G. Bussell.
Albany	John McKail.

In 1874, under 37 Vict., No. 22, the number of members was raised to twenty-one, seven of whom, or one-third of the whole, were to be nominated. The two districts added were the "Murray and Williams" and the "Northern District."

In August, 1876, Mr. Luke Samuel Leake, the Speaker of the Legislative Council, was created a Knight Bachelor.

In 1882, under the 46 Victoria No. 24, the number of Councillors was further raised to twenty-four, eight of whom were to be nominated. The new district was called the "Gascoyne District," and consisted of the Southern portion of the "Northern District."

And finally, in 1886, an Act (50 Vict., No. 10) was passed, increasing the number of members to twenty-six, nine to be nominated, the Northern portion of the Northern District being taken to form the new "Kimberley District."

The last Council under the old form of Government, which expired on the 21st October, 1890, on the proclamation of the new Constitution, was composed as follows:—

OFFICIAL NOMINEES—

Sir Malcolm Fraser, K.C.M.G. ...	Colonial Secretary.
C. N. Warton	Attorney General.
J. A. Wright	Director of Works, Engineer-in-Chief, and Commissioner of Railways.
John Forrest, C.M.G.	Surveyor General and Commissioner of Crown Lands.

UNOFFICIAL NOMINEES—

Sir James G. Lee Steere, Kt. (Speaker).
Sir Thomas Cockburn-Campbell, Bart. (Chairman of Committees).
G. Randell.
D. K. Congdon.
J. Morrison

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ELECTED MEMBERS—

L. V. DeHamel	Albany.
W. E. Marmion	Fremantle.
W. S. Pearse	"
R. F. Sholl	Gascoyne.
McK. Grant	Geraldton.
W. T. Loton	Greenough.
A. Forrest	Kimberley.
W. Paterson	Murray and Williams.
A. R. Richardson	North District.
S. Burt, Q.C.	"
E. Scott	Perth.
E. Keane	"
C. H. Rason	Swan.
G. Shenton	Toodyay.
S. H. Parker	Vasse.
H. W. Venn	Wellington.
C. Harper	York.

The Legislative Council then consisted of a single Legislative Chamber, and was composed of Twenty-six members, presided over by a Speaker, of whom four were official members, five were nominees of the Crown, and 17 were elected by the different constituencies. The qualification of elected members was the possession of £1,000 freehold property. The qualification of an elector was £50 freehold or £10 household, or the lease of Crown lands to the same amount of annual rental.

The elected members were elected for five years, the electoral lists being made up on or before the 10th of April in each year, and all voting was by ballot.

4.—PRESENT CONSTITUTION.

By an almost unanimous vote of the Legislature in July, 1887, a resolution was agreed to affirming the principle of self-Government, and the Governor was requested to take the necessary steps to carry out the wishes of the Legislature. In December, 1888, the Legislative Council was dissolved, and a general election took place in January, 1889, in order that the constituencies might have an opportunity of expressing their views upon the question of the new Constitution. When the Council re-assembled, the Resolution in favour of Responsible Government for the Colony was again carried, this time without a single dissentient voice. The Legislative Council met in April, 1889, and a Constitution Bill, drafted by the Government, was at once brought forward, after amendment passed, and forwarded to the Secretary of State for the Colonies, the Governor (Sir Frederick Napier Broome), Mr. S. H. Parker, and Sir Thomas Cockburn-Cambell being appointed by

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the Legislature to proceed to England to act as delegates on behalf of the Colony when it came before the Imperial Parliament. Much difficulty was experienced in carrying the measure through its various stages, strong opposition having arisen at home to the granting of Western Australia's demands. This was chiefly, if not entirely, due to a misunderstanding of questions relating to the control of the Crown lands. The latter, it was held, by a not inconsiderable and decidedly demonstrative party in England, were the "heritage of the British people," and should be available and retained for settlement by the surplus population of the mother country. To hand over a million, or even half a million, square miles of country, favoured with a temperate clime, to the 45,000 persons thinly scattered over it, was regarded as a piece of folly verging on political crime. The Bill was, however, referred to a select committee—of which Baron de Worms was Chairman—for the taking of evidence; and so impressed were the members of this body—after hearing what the representatives of the Colony had to communicate to them—with the advantages likely to result from giving West Australians a free hand in the management of their great national estate, and so convinced were they of the errors underlying the popular opposition to the measure, that they returned it to the House shorn of nearly all the clauses to which the Colony had previously objected, recommending that full and complete control of the Crown lands should be vested in the local Parliament which it was proposed to establish. Thus, by the exertions of the colonial delegates, aided by the influence of Sir William Robinson, who had in the meanwhile succeeded Sir Frederick Broome as Governor of the Colony, and, opportunely, happened to be in England, combined with the intelligence and liberal-mindedness of a majority of the members of the select committee, was Western Australia "one and undivided" obtained for West Australians. Mention should also here be made of the assistance rendered by the Agents-General for the other Australasian Colonies, at a time when, owing to delays due to the Imperial Cabinet, the Bill appeared to be in jeopardy. In a body the Agents-General waited upon the leader of the Government in the House of Commons, and made representations of a character which swept away final obstacles.

The Bill, enabling Her Majesty *to grant a Constitution to Western Australia*, passed its third reading in the Imperial House of Commons in July, and, meeting with no opposition in the Lords, received the Royal assent on the 15th August, 1890. The announcement of the latter was made by a proclamation, which was dated 21st October, 1890, being publicly read by the Governor, in Perth, on that date, and included in the *Government Gazette* of the 23rd of the same month.

The present Constitution of Western Australia, as provided by "The Constitution Act of 1889" (52 Victoria, No. 23), "The Constitution Act Amendment Act, 1893" (57 Victoria, No. 14), "The Constitution Act Amendment Act, 1896" (60 Victoria,

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No. 18), and "The Constitution Acts Amendment Act, 1899" (63 Victoria, No. 19), differs but little from those of the other Australasian States.

The Executive power is vested in the Governor, who is appointed by the Crown, and who acts under the advice of a Cabinet.

Executive Council.

The Executive Council, which was first appointed on the 29th December, 1890, consisted of:—

The Governor (President).
The Colonial Treasurer (Premier).
The Colonial Secretary.
The Attorney General.
The Commissioner of Crown Lands.
The Director of Public Works and Commissioner of Railways.

At the end of 1894, on the resignation of Mr. S. H. Parker, then Colonial Secretary, the Cabinet was reorganised as follows:—

The Governor (President).
The Colonial Treasurer and Colonial Secretary (Premier),
The Minister of Mines.
The Director of Public Works and Commissioner of Railways.
The Commissioner of Crown Dands.
The Minister of Education.
The Attorney General.

On the 28th April, 1898, the Executive Council was again reorganised, and as then constituted consisted of:—

The Governor (President).
The Colonial Treasurer (Premier)
The Commissioner of Railways.
The Commissioner of Crown Lands.
The Minister of Mines.
The Attorney General.
The Colonial Secretary.

On Mr. Piesse's resignation of the portfolio of Commissioner of Railways on the 23rd August, 1900, the Executive Council was again reorganised, and consisted of the following:—

The Governor (President).
The Colonial Treasurer (Premier).
The Commissioner of Crown Lands.
The Minister of Mines.
The Attorney General.
The Colonial Secretary.
The Commissioner of Railways.

No further change took place until 15th February, 1901, when Sir John Forrest resigned the Premiership, handing over the offices held by him to the Hon. George Throssell. The Council then consisted of:—

The Governor (President).
The Colonial Treasurer (Premier).
The Minister of Mines.
The Colonial Secretary.
The Attorney General.
The Commissioner of Railways.
The Minister for Lands.

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On 20th March, 1901, Mr. Pennefather resigned the Attorney Generalship, and was succeeded by Mr. Sayer on 25th March, 1901. The order was then :—

The Governor (President).
The Colonial Treasurer (Premier).
The Minister of Mines.
The Colonial Secretary.
The Commissioner of Railways.
The Minister for Lands.
The Attorney General.

Mr. Throssell tendered the resignation of himself and colleagues on 27th May, 1901, on which date Mr. Leake formed a Ministry, the Executive Council consisting of the following :—

The Governor (President).
The Attorney General (Premier).
The Colonial Treasurer.
The Minister for Works.
The Minister for Lands.
The Commissioner of Railways.
The Minister for Mines.

Dr. Jameson, M.L.C., and Mr. W. H. James, M.L.A., were appointed members of the Council without portfolios.

The Leake Government went out of office on 21st November, 1901, giving place to the Morgans' Ministry. The order of precedence in the Executive Council then was:—

The Governor (President).
The Colonial Treasurer (Premier).
The Attorney General.
The Commissioner of Railways.
The Minister for Works.
The Minister for Lands.
The Colonial Secretary.

Mr. Morgans resigned the Premiership on 23rd December, 1901, when Mr. Leake formed his second Ministry. The Executive Council was then constituted as follows :—

The Governor (President).
The Attorney General (Premier).
The Commissioner of Railways.
The Colonial Treasurer and Colonial Secretary.
The Minister for Mines.
The Minister for Lands.
The Minister for Works.

Mr. J. J. Holmes, M.L.A., and Mr. E. M. Clarke, M.L.C., were appointed members without portfolio.

Upon the death of Mr. George Leake, K.C., on the 24th June, 1902, the Leake Ministry resigned, and on the 1st July

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Mr. Walter Hartwell James, K.C., M.L.A., formed a new Ministry. The Executive Council then consisted of:—

The Governor (President).
The Attorney General (Premier).
The Colonial Secretary and Minister for Education.
The Minister for Mines.
The Minister for Lands.
The Minister for Works and Railways.
The Colonial Treasurer.

Mr. Matthew Lewis Moss, M.L.C., on the 13th August of that year, was appointed a member as Minister without portfolio.

On the 23rd January, 1903, Dr. Adam Jameson, M.L.C., resigned his portfolio as Minister for Lands, having accepted the position of Commissioner of Crown Lands in the Transvaal. He was succeeded on the 17th February following by Mr. John Marquis Hopkins, M.L.A.

On the 25th January, 1904, Mr. John Leighton Nanson, M.L.A., was appointed to be a member of the Executive Council.

On the 10th March, 1904, Mr. M. L. Moss, M.L.C., resigned his position as a member of the Executive Council.

On the 20th April, 1904, Mr. James Gardiner, M.L.A., resigned his portfolio as Colonial Treasurer, and Mr. C. H. Rason, M.L.A., already Minister for Works and Railways, was, in addition, appointed Colonial Treasurer.

On the 28th of that month, Mr. John Leighton Nanson, M.L.A., was appointed Minister for Works, the position being on that date relinquished by Mr. C. H. Rason, who, however, still retained the portfolios of Colonial Treasurer and Minister for Railways.

The Executive Council then was constituted as follows:—

The Governor (President).
The Attorney General (Premier).
The Colonial Secretary and Minister for Education.
The Minister for Mines.
The Colonial Treasurer and Minister for Railways.
The Minister for Lands.
The Minister for Works.

The James Government resigned on the 10th August, and Mr. H. Daglish formed the present Ministry, the Council now consisting of:

The Governor (President).
The Colonial Treasurer and Minister for Education (Premier).
The Minister for Mines and Justice.
The Minister for Lands.
The Minister for Works.
The Colonial Secretary.
The Minister for Railways and Labour.

Mr. W. C. Angwin, M.L.A., was appointed a member without portfolio.

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Under "The Constitution Acts Amendment Act, 1896," £6,200 is secured for the payment of the six Ministerial salaries.

Sir William C. F. Robinson, the first Governor under Responsible Government, was succeeded on the 5th October, 1895, by Sir Gerard Smith, K.C.M.G. The new Governor arrived in the Colony in December of that year and took over the Government from Sir Alexander Campbell Onslow, who had acted as Administrator during the Governor's absence. In March, 1900, Sir Gerard Smith left Western Australia on leave of absence, and Sir Alexander Onslow once more resumed duty as Administrator till March 1901, when he also left on leave of absence, and was succeeded by His Honour the Acting Chief Justice, Mr. E. A. Stone, as Administrator. The Honourable Sir Arthur Lawley, K.C.M.G., arrived in Perth on 1st May, 1901, and was sworn in as Governor on that date. Sir Arthur Lawley, being appointed Lieutenant-Governor of the Transvaal, left on the 14th August, 1902, and His Honour the Chief Justice, now Sir Edward A. Stone, Kt., was again appointed Administrator. On the 24th March, 1903, Admiral Sir Frederick George Denham Bedford, G.C.B., having arrived in Perth under appointment as Governor of the State, was sworn in, and took up his position at the head of the Government.

The first Ministry under the new Constitution assumed office on the 29th December, 1890. At the time of its formation it consisted of:—

John Forrest, C.M.G., Colonial Treasurer.
George Shenton, Colonial Secretary.
Septimus Burt, Q.C., Attorney General.
William Edward Marmion, Commissioner of Crown Lands.
Harry Whittall Venn, Commissioner of Railways and Director of Public Works.

Sir George Shenton, who had in the meantime been knighted, accepted the appointment of President of the Legislative Assembly, and was succeeded as Colonial Secretary, on the 11th October, 1892, by Mr. Stephen Henry Parker, Q.C. On the 4th December, 1894, Mr. Parker and Mr. Marmion resigned. Mr. Marmion was succeeded by Mr. Alexander Robert Richardson; whilst under a re-arrangement of the Cabinet, Mr. Edward Horne Wittenoom was appointed Minister of Mines and Education on the 19th December; the Premier, Sir John Forrest, undertaking the combined duties of Colonial Secretary and Treasurer. On the 10th March, 1896, Mr. Venn was succeeded by Mr. Frederick Henry Piesse. In March, 1897, Mr. Richardson was succeeded by Mr. George Throssell. In May Mr. Henry Bruce Lefroy was appointed Minister of Education. On the 27th October Mr. S. Burt resigned, and was succeeded by Mr. Richard William Pennefather.

On the appointment of the Mr. E. H. Wittenoom as Agent General for the Colony, he resigned his position as Minister of

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Mines, and the Cabinet of Western Australia was, on the 28th April, 1898, once more reconstructed, as follows:—

Premier and Colonial Treasurer, The Right Hon. Sir John Forrest, P.C., K.C.M.G., M.L.A.
Commissioner of Railways, The Hon. Frederick Henry Piesse, M.L.A.
Commissioner of Crown Lands, The Hon. George Throssell, M.L.A.
Minister of Mines, The Hon. Henry Bruce Lefroy, M.L.A.
Attorney General, The Hon. Richard William Pennefather, M.L.A.
Colonial Secretary, The Hon. George Randell, M.L.C.

Mr. Piesse resigned as Commissioner of Railways on 23rd August, 1900, and was succeeded by Mr. B. C. Wood.

On Sir John Forrest's resignation, on the 15th February, 1901, Mr. Throssell became Premier and Colonial Treasurer, the personnel of the Cabinet being—

Premier and Colonial Treasurer, The Hon. George Throssell, M.L.A.
Minister of Mines, The Hon. Henry Bruce Lefroy, M.L.A.
Colonial Secretary, The Hon. George Randell, M.L.C.
Attorney General, The Hon. Richard William Pennefather, K.C., M.L.A.
Commissioner of Railways, The Hon. Barrington Clarke Wood, M.L.A.
Minister for Lands, The Hon. Charles John Moran, M.L.A.

On his temporary elevation to the Judicial Bench, on 25th March, 1901, Mr. Pennefather resigned the Attorney Generalship, and Mr. W. F. Sayer was appointed to the position.

Mr. Throssell's Cabinet resigned on 27th May, 1901, and was succeeded on that date by the Leake Ministry, which consisted of—

Premier and Attorney General, The Hon. George Leake, K.C., M.L.A.
Colonial Treasurer and Colonial Secretary, The Hon. Frederick Illingworth, M.L.A.
Minister for Works, The Hon. Walter Kingsmill, M.L.A.
Minister for Lands, The Hon. Charles Sommers, M.L.C.
Commissioner of Railways, The Hon. Joseph John Holmes, M.L.A.
Minister for Mines, The Hon. Henry Gregory, M.L.A.

Dr. Adam Jameson, M.L.C., and Mr. Walter Hartwell James, M.L.A., were appointed Ministers, without portfolio, on 28th June, 1901.

Owing to an adverse vote being carried against his Government in the Legislative Assembly, Mr. Leake resigned on 21st November, 1901. Mr. Piesse was then called upon to form a Ministry, but was unsuccessful, the task eventually being allotted to Mr. A. E. Morgans, who succeeded in forming a Cabinet, consisting of the following:—

Premier and Colonial Treasurer, The Hon. Albert Edward Morgans, M.L.A.
Attorney General, The Hon. Frederick William Moorhead, K.C., M.L.A.
Commissioner of Railways, The Hon. Frank Wilson, M.L.A.
Minister for Works, The Hon. Timothy Francis Quinlan, M.L.A.
Minister for Lands, The Hon. John Leighton Nanson, M.L.A.
Colonial Secretary, The Hon. Matthew Lewis Moss, M.L.C.

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At the elections consequent upon their appointment to "offices of profit under the Crown," three of Mr. Morgan's colleagues, viz., Messrs. Moorhead, Moss, and Wilson, were rejected by their constituents. This brought about another change of Government, as on 23rd December, 1901, Mr. Morgans tendered his resignation and that of his colleagues. Mr. Leake was then again sent for, and formed his second Ministry, which consisted of the following:—

Premier and Attorney-General, The Hon. George Leake, K.C., M.L.A.
Commissioner of Railways, The Hon. Walter Kingsmill, M.L.A.
Colonial Treasurer and Colonial Secretary, The Hon. Frederick Illingworth, M.L.A.
Minister for Mines, The Hon. Henry Gregory, M.L.A.
Minister for Lands, the Hon. Adam Jameson, M.L.C.
Minister for Works, The Hon. Cornthwaite Hector Rason, M.L.A.

Mr. Joseph John Holmes, M.L.A., and the Mr. Ephraim Mayo Clarke, M.L.C., were appointed members of the Ministry without portfolio.

The Leake Ministry having resigned, consequent upon the death of its leader, Mr. Walter Hartwell James, K.C., M.L.A., formed the following Ministry:—

Premier and Attorney General, The Hon. Walter Hartwell James, K.C., M.L.A.
Colonial Secretary and Minister for Education, The Hon. Walter Kingsmill, M.L.A.
Minister for Mines, The Hon. Henry Gregory, M.L.A.
Minister for Lands, The Hon. Adam Jameson, M.L.C.
Minister for Works and Railways, The Hon. Cornthwaite Hector Rason, M.L.A.
Colonial Treasurer, The Hon. James Gardiner, M.L.A.
Minister without portfolio, The Hon. Matthew Lewis Moss, M.L.C.

Dr. Jameson, having been offered the position of Commissioner of Crown Lands in the Transvaal, resigned on the 23rd January, 1903, and his place in the Ministry was offered to, and accepted by, Mr. John Marquis Hopkins, M.L.A., on the 17th February next.

Since then the following changes have taken place in the James Ministry:—

February, 1903. Mr. W. Kingsmill, M.L.A., having resigned his seat in the Legislative Assembly, was elected a member of the Legislative Council.

25th January, 1904. Mr. John Leighton Nanson, M.L.A., appointed a Minister without portfolio.

10th March, 1904. Resignation of Mr. M. L. Moss, M.L.C., as a member of the Executive Council.

20th April, 1904. Resignation of Mr. James Gardiner, M.L.A., as Colonial Treasurer. Mr. C. H. Rason, M.L.A., added the office of Colonial Treasurer to that already held by him as Minister for Works and Railways.

28th April, 1904. Mr. J. L. Nanson, M.L.A., appointed Minister for Works; Mr. C. H. Rason, M.L.A., retaining the double office of Colonial Treasurer and Minister for Railways.

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All the Ministers having been returned to Parliament at the General Elections in June, 1904, the James Ministry was therefore then constituted as follows:—

Premier and Attorney General, The Hon. Walter Hartwell James, K.C., M.L.A.
Colonial Secretary and Minister for Education, The Hon. Walter Kingsmill, M.L.C.
Minister for Mines, The Hon. Henry Gregory, M.L.A.
Colonial Treasurer and Minister for Railways, The Hon. Cornthwaite Hector Rason, M.L.A.
Minister for Lands, The Hon John Marquis Hopkins, M.L.A.
Minister for Works, The Hon. John Leighton Nanson, M.L.A.

The James Ministry resigned owing to a vote of want of confidence being carried against the Government in the Legislative Assembly, and Mr. H. Daglish was called upon to form a Ministry. The new Ministry was sworn in on the 10th August, 1904, and is composed as follows:—

Premier and Colonial Treasurer, also Minister for Education, The Hon. Henry Daglish, M.L.A.
Minister for Mines and Justice, The Hon. Robert Hastie, M.L.A.
Minister for Lands, The Hon. John Michael Drew, M.L.C.
Minister for Works, The Hon. William Dartnell Johnson, M.L.A.
Colonial Secretary, The Hon. George Taylor, M.L.A.
Minister for Railways and Labour, The Hon. John Barkell Holman M.L.A.
Minister without portfolio, The Hon. William Charles Angwin, M.L.A

LEGISLATIVE.

The Legislative authority is vested in a Parliament composed of two Houses—the Legislative Council and the Legislative Assembly.

Legislative Council.

After the establishment of Responsible Government the Legislative Council was, in the first instance, nominated by the Governor; but it was provided that so soon as the population of the Colony reached 60,000, it should be elective. On the 18th July, 1893, it was proclaimed that this limit of population was reached, and Parliament soon afterwards passed an Act (57 Vict., No. 14) amending the Constitution.

The first Legislative Council under Responsible Government was composed as follows:—

Amherst, The Honble. J. G. H.
Brockman, E. R.
Burges, T.
Bush, R. E.
Cockburn-Campbell, Sir T., Bart. (President)
Grant, M.
Hackett, J. W.
Hamersley, E.
Hardey, R. W.
Leake, G. W.
Monger, J. H.
Moore, W. D.
Morrison, J.
Shenton, G. (Colonial Secretary).
Wright, J. A.

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By "The Constitution Acts Amendment Act, 1896," the Colony was divided into eight electoral provinces. "The Constitution Acts Amendment Act, 1899," divided the Colony into ten provinces, each returning three members to the Legislative Council. These provinces were modified by the "Redistribution of Seats Act, 1904," and now contain the following Electoral Districts:—

Central.—Comprising Cue, Geraldton, Greenough, Irwin, Mount Magnet, and Murchison electoral districts.

East.—Comprising Beverley, Northam, Swan, Toodyay, and York electoral districts.

Metropolitan.—Comprising Perth, East Perth, North Perth, and West Perth electoral districts.

Metropolitan-Suburban.—Comprising Balkatta, Canning, Claremont, Guildford, and Subiaco electoral districts.

North.—Comprising Gascoyne, Kimberley, Pilbara, and Roebourne electoral districts.

North-East.—Comprising Brown Hill, Kalgoorlie, Kanowna, Mount Leonora, Mount Margaret, and Menzies electoral districts.

South.—Comprising Boulder, Coolgardie, Dundas, Hannans, Ivanhoe, and Yilgarn electoral districts.

South-East.—Comprising Albany, Katanning, and Williams electoral districts.

South-West.—Comprising Bunbury, Collie, Forrest, Murray, Nelson, Sussex, and Wellington electoral districts.

West.—Comprising Fremantle, East Fremantle, North Fremantle, and South Fremantle electoral districts.

TENURE OF SEAT (six years).—At the expiration of two years from the date of election, and every two years thereafter, the senior member for the time being for each province retires. Seniority is determined (1) by date of election; (2) if two or more members are elected on the same day, then the senior is the one who polled the least number of votes; (3) if the election be uncontested, or in case of an equality of votes, then the seniority is determined by the alphabetical precedence of surnames and, if necessary, Christian names.

QUALIFICATION OF MEMBERS.—Being (1) a man of 30 years of age and free from legal incapacity; (2) a resident in the State for at least two years; (3) a natural-born subject of His Majesty, or naturalised for five years and resident in the State during that period.

DISQUALIFICATION AS A MEMBER.—If he (1) be a member of the Legislative Assembly; (2) be a Judge of the Supreme Court; (3) be the Sheriff of Western Australia; (4) be a clergyman or

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minister of religion; (5) be an undischarged bankrupt or debtor against whose estate there is a subsisting receiving order in bankruptcy; (6) has been in any part of His Majesty's dominions attainted or convicted of treason or felony; (7) be directly or indirectly interested in a Government contract or agreement; (8) shall hold any office of profit or emolument under the Crown other than that of an officer of His Majesty's sea or land forces on full, half, or retired pay, except as one of the six Responsible Ministers, or as President of the Council.

TITLE.—The Members are all entitled to the prefix of "The Honourable" before their names.

QUALIFICATION OF ELECTORS.—"The Constitution Act Amendment Act, 1899," has extended the right to vote equally to both sexes. Every person seeking to be registered as an elector must (1) be at least 21 years of age, and not subject to any legal incapacity; (2) be a natural-born or naturalised subject of His Majesty, resident in the State for six months; (3) either: (*a*) possess within the electoral province for which he seeks to be registered a freehold estate of the clear value of £100; or: (*b*) be a householder within the province, the dwelling-house being of the clear annual value of £25; or: (*c*) be a holder of a leasehold of the clear annual value of £25; or: (*d*) be a holder of a lease or license from the Crown at an annual rental of at least £10; or: (*e*) have his or her name on the Electoral List of a Municipality or Roads Board in respect of property in the province of the annual ratable value of £25. When registered for six months he or she shall be entitled to vote for each or any number of candidates not exceeding the number of members to be elected for the province.

DISQUALIFICATION OF ELECTORS.—Foreigners or persons who are not naturalised subjects of His Majesty, or have not been naturalised for at least 12 months before making the claim, or any person who has been attainted or convicted of treason, felony, or any infamous offence in any part of His Majesty's dominions, unless he or she shall have served his or her sentence for the same, or have received a free or conditional pardon. No aboriginal native of Australia, Asia, or Africa, or person of the half-blood, except in respect of a freehold qualification, can be registered. No elector can be registered more than once for a province. No person possessing more than one qualification within a province is thereby entitled to be registered more than once for that province.

By the "Payment of Members Act, 1900," it was enacted that members of the Legislative Council should be entitled to receive payment at the rate of two hundred pounds per annum; but if in receipt of any official salary or annual sum out of the Consolidated Revenue, no member is entitled to such payment, except in so far as it may exceed the amount of such official salary or annual sum.

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The following is a list of members of the Legislative Council, at the first session of the fifth Parliament, in August, 1904:—

	Member.	Province.	Date of Election.	No. of Electors on Roll June, 1904.
1	Bellingham, George	South	12th May, 1902	5,988
2	Briggs, Henry	West	30th May, 1904	5,120
3	Brimage, Thomas Frederick Outridge	South	5th Sept., 1900	
4	Clarke, Ephraim Mayo	South-West	12th May, 1902	2,185
5	Connolly, James Daniel	North-East	12th May, 1902	4,010
6	Dempster, Charles Edward ...	East	14th May, 1900	2,637
7	Drew, John Michael a	Central	14th May, 1900	1,648
8	Hackett, John Winthrop, LL.D.	South-West	3rd May, 1900	
9	Hamersley, Vernon	East	5th Aug., 1904	
10	Haynes, Samuel Johnson	South-East	30th May, 1904	1,288
11	Kingsmill, Walter	Metropolitan-Suburban	13th Feb., 1903	5,300
12	Lane, Zebina	Metropolitan-Suburban	11th Sept., 1903	
13	Langsford, Joseph Wood	Metropolitan-Suburban	5th Jan., 1904	
14	Laurie, Robert	West	6th Dec., 1901	
15	Loton, William Thorley	East	30th May, 1902	
16	Maley, Wesley	South-East	14th May, 1900	
17	McKenzie, Robert Donald ...	North-East	30th May, 1904	
18	McLarty, Edward	South-West	30th May, 1904	
19	Moss, Matthew Lewis	West	12th May, 1902	
20	Oats, William	South	30th May, 1904	
21	Patrick, William	Central	30th May, 1904	
22	Piesse, Charles Austin	South-East	12th May, 1902	
23	Randell, George	Metropolitan	30th May, 1904	5,537
24	Shenton, The Hon. Sir George ...	Metropolitan	14th May, 1900	
25	Sholl, Robert Frederick	North	30th May, 1904	426
26	Sommers, Charles	North-East	11th June, 1901	
27	Stone, Frank Mends	North	3rd May, 1900	
28	Thomson, Joseph Angus	Central	12th May, 1902	
29	Wittenoom, Sir Edward Horne, K.C.M.G.	North	12th May, 1902	
30	Wright, James William	Metropolitan	12th May, 1902	
	Total number of Electors on roll	... ...	...	34,139

a Re-elected on acceptance of position in Ministry, 27th August, 1904.

Legislative Assembly.

The first Legislative Assembly under Responsible Government was composed as follows:—

Baker, W. L., East Kimberley
Burt, S., Q.C., Ashburton, Attorney General
Canning, M. F. A., East Perth
Clarkson, B. D., Toodyay
Cookworthy, J., Sussex
Darlôt, E. F., Murchison
DeHamel, L. V., Albany
Forrest, J., C.M.G., Bunbury, Premier and Treasurer
Forrest, A., West Kimberley
Harper, C., Beverley
Hassell, A. Y., Plantagenet
Keane, E., Geraldton
Leake, G., Roebourne
Loton, W. T., Swan
Marmion, W. E., Fremantle, Commissioner of Crown Lands
Parker, S. H., Q.C., York
Paterson, W., Murray
Pearse, W. S., North Fremantle
Phillips, S. J., Irwin
Piesse, F. H., Williams
Quinlan, T. F., West Perth
Randell, G., Moore, Chairman of Committees
Richardson, A. R., DeGrey
Scott, E., Perth
Sholl, R. F., Gascoyne
Steere, Sir J. G. Lee, Kt., Nelson, Speaker
Symon, D., South Fremantle
Throssell, G., Northam
Traylen, W., Greenough
Venn, H. W., Wellington

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"The Constitution Acts Amendment Act, 1896," divided the Colony into forty-four electorates. By "The Constitution Acts Amendment Act, 1899," Western Australia was divided into fifty electorates for the Legislative Assembly, each represented by one member. The "Redistribution of Seats Act, 1904," amended the electoral districts, and established the following:—

ELECTORATES.

Albany	Gascoyne	Nelson
Balkatta	Geraldton	Northam
Beverley	Greenough	Perth
Boulder	Guildford	Perth, East
Brown Hill	Hannans	Perth, North
Bunbury	Irwin	Perth, West
Canning	Ivanhoe	Pilbara
Claremont	Kalgoorlie	Roebourne
Collie	Kanowna	Subiaco
Coolgardie	Katanning	Sussex
Cue	Kimberley	Swan
Dundas	Menzies	Toodyay
Forrest	Mt. Leonora	Wellington
Fremantle	Mt. Magnet	Williams
Fremantle, East	Mt. Margaret	Yilgarn
Fremantle, North	Murchison	York
Fremantle, South	Murray	

The members of the Legislative Assembly are elected for a period of three years.

Qualifications of a Member.—Any man who has resided in the State for twelve months, if he be twenty-one years of age and not subject to any legal incapacity, and is a natural born subject of the King, or, if not a natural born subject of the King, shall have been naturalised for five years and shall have resided in the State for two years.

Disqualifications of a Member.—If he (1) be a member of the Legislative Council; (2) be a Judge of the Supreme Court; (3.) be the Sheriff of Western Australia; (4) be a clergyman or minister of religion; (5) be an undischarged bankrupt, or debtor against whose estate there is a subsisting receiving order in bankruptcy; (6) has been, in any part of His Majesty's dominions, attainted or convicted of treason or felony; (7) be directly or indirectly concerned in any contracts for the public service; (8) shall hold any office or place of profit or emolument under the Crown other than that of an officer of His Majesty's sea or land forces on full, half, or retired pay, except as one of the six Responsible Ministers, or as Speaker or Chairman of the Legislative Assembly.

Qualifications of Electors.—Every person seeking to be registered as an elector must be of the age of twenty-one years, a natural born or naturalised subject of His Majesty, not subject to any legal incapacity, must have resided in the State for at least six months, and must be (1) a resident in the district at the time of making his or her claim; or (2) have a freehold estate in the

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district of the clear value of £50; or (3) be a householder, the house or premises being of the clear annual value of £10; or (4) be the holder of a leasehold of the clear annual value of £10; or (5) be the holder of a lease or license of Crown lands, at an annual rental of £5; or (6) have his or her name on the Electoral List of a Municipality or Roads Board in respect of property within the district. When registered for six months he or she shall be entitled to vote for a member for the district.

Disqualifications of Electors.—Foreigners and persons who are not naturalised subjects of His Majesty, or have not been naturalised for at least six months before making the claim, or any person who has been attainted or convicted of treason, felony, or any infamous offence in any part of His Majesty's dominions, unless he or she shall have served his or her sentence for the same, or have received a free or conditional pardon. No aboriginal native of Australia, Asia, or Africa, or persons of the half-blood, except in respect of a freehold qualification, can be registered. No elector can be registered more than once for a district.

No person may, at the same time, be registered on more than one Assembly roll.

The members of the Legislative Assembly receive payment at the rate of two hundred pounds per annum; but if in receipt of any official salary or annual sum out of the Consolidated Revenue, no member is entitled to such payment, except in so far as it may exceed the amount of such official salary or annual sum. A free pass is granted to members of both Houses over all Government lines of railway, and by courtesy the same privilege is extended to them over the lines belonging to private companies.

Under the provisions of "The Constitution Acts Amendment Act, 1899," the number of electors on the roll rose from 46,554 in April, 1900, to 91,522 in April, 1901, the date of the general elections. Of the latter number, 16,648 were female electors. In the 41 contested electorates, out of 67,967 male electors only 29,832 recorded their votes, or 43·89 per cent.; whilst out of 14,775 female electors, 8,255 voted, or 55·87 per cent. The percentage of total votes recorded in those electorates to the total number of electors was 46·03, as against 52·68 at the elections in 1897, 61·08 in 1894, and 78·33 in 1890. Allowance must be made, however, for a certain amount of inaccuracy in the electoral lists in April, 1901. This is proved by the fact that in December, 1901, the total number of electors on the rolls had fallen to 89,442, although the population had increased by nearly 10,000.

At the time of the last elections, namely, those which took place in June, 1904, there were on the electoral rolls of the State 108,861 names of male, and 54,965 names of female electors, making a total of 163,826 names. The number of ballot papers issued and votes recorded accounted for 43,285 male and 23,500 female voters, total, 66,785; whilst a total of 691 ballot papers were rejected as informal. The proportion of males and females voting to the total number of votes recorded was, for the two sexes respectively, 65

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per cent. and 35 per cent. The ratio of votes recorded by males and females respectively, to the number of males and females on the rolls in the contested electorates, was 49 per cent. and 47 per cent. A noteworthy feature of the elections was the large increase in the number of members representing the labour interests. Whilst the previous Assembly had only contained six such members, the number in the present Legislative Assembly is no less than 22 out of the total of 50 members. The following return gives the names of the members for the several electorates, with the number of names on the electoral roll and the number of electors who voted:—

Members Elected in June, 1904.	District.	No. of names on roll at time of election.	a No. of votes recorded.		
			By males.	By Females.	Total.
Angwin, William Charles	East Fremantle ...	4,237	1,322	1,037	2,359
Bath, Thomas Henry	Brown Hill	3,974	...	..	...
Bolton, Harry Edward	North Fremantle ...	3,270	1,007	798	1,805
Brown, Harry	Perth	5,658	1,145	441	1,586
Burges, Richard Goldsmith	York	1,124	...	...	...
Butcher, William James	Gascoyne	561	...	..	...
Carson, Henry	Geraldton	1,586	647	439	1,086
Connor, Francis	Kimberley	1,149	486	81	567
Cowcher, George Stanyford Francis	Williams	2,194	887	310	1,197
Daglish, Henry b	Subiaco	3,305	1,329	1,048	2,377
Diamond, Arthur James	South Fremantle ...	5,966	1,518	818	2,336
Ellis, Henry Augustus	Coolgardie	3,343	1,228	767	1,995
Foulkes, John Charles Griffiths ...	Claremont	3,255	1,043	892	1,935
Gill, Frederick	Balkatta	3,353	1,031	653	1,684
Gordon, William Beattie	Canning	2,983	968	644	1,612
Gregory, Henry	Menzies	3,729	1,555	508	2,063
Harper, Charles	Beverley	1,502	510	198	708
Hastie, Robert b	Kanowna	3,710	...	..	...
Hayward, Thomas	Wellington	1,854	584	315	899
Heittman, Edward Ernest	Cue	2,607	1,143	381	1,524
Henshaw, Ernest Percival	Collie	2,990	1,000	464	1,464
Hicks, John Sydney	Roebourne	691	...	..	...
Holman, John Barkell b	Murchison	2,314	...	...	...
Hopkins, John Marquis	Boulder	3,600	1,313	850	2,163
Horan, Austin Alvis	Yilgarn	6,420	1,480	460	1,940
Isdell, James	Pilbara	1,247	622	42	664
Jacoby, Mathieson Harry	Swan	2,746	887	340	1,227
James, Walter Hartwell	East Perth	6,962	1,583	1,112	2,695
Johnson, William Dartnell b	Kalgoorlie	5,103	1,888	1,116	3,004
Keyser, Charles Christopher	Albany	3,969	1,015	696	1,711
Layman, Charles Henry	Nelson	1,846	853	356	1,209
Lynch, Patrick Joseph	Mount Leonora ...	5,898	...	..	...
McLarty, John Pollard	Murray	1,350	456	259	715
Moore, Newton James	Bunbury	2,757	928	747	1,675
Moore, Samuel Fortescue	Irwin	1,511	465	241	706
Moran, Charles John	West Perth	7,175	1,645	1,188	2,833
Nanson, John Leighton	Greenough	1,359	530	309	839
Needham, Edward	Fremantle	5,254	1,205	538	1,743
Nelson, Wallace	Hannans	4,412	1,332	711	2,043
Piesse, Frederick Henry	Katanning	1,228	...	...	...
Quinlan, Timothy Francis	Toodyay	1,200	...	...	...
Rason, Cornthwaite Hector	Guildford	4,047	1,257	705	1,962
Scaddan, John	Ivanhoe	3,834	1,672	558	2,230
Taylor, George b	Mount Margaret ...	4,811	...	.	.
Thomas, Albert Ernest	Dundas	2,001	932	365	1,297
Troy, Michael Francis	Mount Magnet ...	2,526	977	250	1,227
Watts, Alfred John Henry	Northam	3,943	1,210	637	1,847
Wilson, Albert James	Forrest	3,428	741	230	971
Wilson, Frank	Sussex	1,106	552	374	92[illegible]
Wilson, Francis Ford	North Perth	9,747	2,339	1,622	3,96[illegible]
Total number of names on the roll ...		163,826	...	...	...
Number in the 40 contested electorates ...		138,315	43,285	23,500	66,78[illegible]

a Where no number is shown, the Member was returned unopposed. b Returned unopposed on acceptance of position in Ministry, 19th August, 1904.

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5.—LOCAL GOVERNMENT.

As is only to be expected, the system of Local Government is at present making comparatively slow progress in Western Australia, where a mere handful of people are thinly scattered over so large an area.

Taking, however, into consideration the benefits which must accrue from a thoroughly comprehensive scheme for the decentralisation of power, particularly in a country of great distances, and judging by the success of similar institutions elsewhere in Australasia, it may reasonably be expected that, as its population increases, the people of this State will take fuller advantage of the various forms of self-government provided.

(A.)—MUNICIPALITIES.

Before the more comprehensive Municipal Institutions Act of 1895, now repealed, came into operation, various Ordinances and Acts had from time to time been passed and amended, in order to satisfy the growing demand for local government, which asserted itself as one of the primary results of the spread of education and the increase of population.

The first Act relating to the establishment of municipalities was assented to on the 2nd of January, 1871, and under its provisions the City of Perth was proclaimed a municipality, the following centres very shortly afterwards being brought under its operations, viz. :—Fremantle, Albany, Geraldton, Bunbury, Busselton, Guildford, and York, all of which were gazetted "Municipalities" during the first quarter of 1871. Since then the list has been added to from time to time as occasion has arisen, until at the present time there are 44 declared municipalities in existence in Western Australia.

The laws relative to municipalities were consolidated and further amended with the passing of "The Municipal Institutions Act, 1900" (64th Vict., No. 8), and "The Municipal Institutions Act Amendment Act, 1904" (3rd Edw. VII., No. 3), under the provisions of which their affairs are now regulated.

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MUNICIPALITIES*—AREA, POPULATION, BUILDINGS, ETC., 1901-1902.

No.	Name of Municipality.	Date when Municipality was first gazetted.	Date on which latest alteration of Boundaries was gazetted.	Incorporated Area of the Municipality on the 31st October, 1902. (a)	Population and Dwellings as per Census on the 31st March, 1901.					
					Population within the Municipal Boundaries.			Number of Dwellings within the Municipal Boundaries.		
					Males.	Females.	Total.	Occupied.	Unoccupied.	Total.
				Acres.	No.	No.	No.	No.	No.	No.
1	Albany	21-2-71	25-10-88	5,375	1,782	1,812	3,594	754	74	828
2	Beverley	31-3-92	...	1,280	112	82	194	37	2	39
3	Boulder	6-8-97	6-10-99	398	2,720	1,881	4,601	1,332	104	1,436
4	Broad Arrow	26-2-97	11-1-01	651	343	199	542	176	7	183
5	Bulong	13-11-96	25-2-98	1,172	110	81	191	76	...	76
6	Bunbury	21-2-71	22-10-97	2,016	1,229	1,226	2,455	477	57	534
7	Busselton	21-2-71	...	800	218	234	452	85	10	95
8	Carnarvon	4-6-91	...	700	186	104	290	65	...	65
9	Claremont	17-6-98	13-7-00	1,158	1,037	977	2,014	428	19	447
10	Collie	10-5-01	...	6,451	...	...	(d)	...	...	(d)
11	Coolgardie	6-7-94	21-10-98	1,715	2,404	1,845	4,249	1,143	61	1,204
12	Cossack	1-12-87	...	2,600	127	39	166	53	10	63
13	Cue	1-6-94	...	160	755	436	1,191	340	15	355
14	Day Dawn	8-9-92	21-12-94	109	260	93	353	81	...	81
15	Esperance	27-9-95	11-8-99	1,516	174	167	341	78	29	107
16	Fremantle	21-2-71	8-9-92	2,755	8,353	6,351	14,704	2,703	21	2,724
17	Fremantle, East	2-4-97	28-6-99	755	1,323	1,171	2,494	548	23	571
18	Fremantle, North	13-9-95	...	794	1,795	1,451	3,246	703	13	716
19	Geraldton	21-2-71	...	1,920	1,285	1,173	2,458	489	59	548
20	Gingin	23-2-93	...	260	96	61	157	28	7	35
21	Guildford	21-2-71	10-5-01	579	720	742	1,462	297	5	302
22	Kalgoorlie	15-2-95	9-9-99	1,120	4,038	2,614	6,652	1,815	136	1,951

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23	Kanowna	28-2-96	13-1-99	600	629	415	1,044	346	22	368
24	Kookynie c	23-5-02	...	2,016	...	...	(d)	...	...	(d)
25	Leederville	3-4-96	...	875	1,331	1,214	2,545	610	44	654
26	Leonora	31-8-00	...	606	225	89	314	98	...	98
27	Malcolm	26-10-00	9-11-00	456	146	104	250	87	1	88
28	Menzies	30-8-95	12-2-97	955	1,050	437	1,487	391	8	399
29	Midland Junction	8-11-95	7-3-02	736	911	657	1,568	308	2	310
30	Mount Magnet	1-5-96	18-3-98	353	241	133	374	97	...	97
31	Mount Morgans	12-10-00	...	1,113	503	140	643	284	...	284
32	Nannine	24-7-96	...	83	72	21	93	26	6	32
33	Newcastle	2-10-77	...	800	167	172	339	62	6	68
34	Norseman	17-1-96	...	640	155	108	263	70	10	80
35	Northam	4-11-79	27-8-97	1,337	1,072	946	2,018	423	20	443
36	Paddington	14-6-01	19-9-02	526	...	...	(d)	...	...	(d)
37	Perth	b 2-1-71	10-8-00	2,840	14,588	12,965	27,553	5,004	104	5,108
38	Perth, North	25-10-01	...	1,300	...	...	(d)	...	...	(d)
39	Perth, South	21-2-02	...	2,600	...	...	(d)	...	...	(d)
40	Roebourne	1-12-87	...	6,336	212	100	312	76	11	87
41	Southern Cross	16-6-92	...	608	351	213	564	145	5	150
42	Subiaco	26-3-97	...	1,450	1,514	1,491	3,005	698	11	709
43	Victoria Park	30-4-97	27-4-00	4,003	674	593	1,267	285	40	325
44	York	7-3-71	2-8-95	4,350	673	689	1,362	271	25	296
	Total	...	...	68,867	53,581	43,226	e96,807	20,989	967	e21,956

* On the 28th October, 1879, the town of Northampton was declared to be a municipality. No advantage, however, having been taken of the proclamation, the name of the municipality has been excluded from the present returns. a Supplied by Lands Department. b Constituted a Municipality by "The Municipal Institutions Act, 1871" (34 Vict., No. 6). c Not working during 1901-1902. d Not proclaimed a Municipality at date of Census. e Exclusive of Collie, Kookynie, Paddington, North Perth, and South Perth, which were not proclaimed municipalities at the date of the Census.

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Constitution of Municipalities.

Under the Consolidated Act of 1900 the Governor may from time to time, by proclamation in the *Government Gazette*, declare any town or locality to be a municipality if it contains ratable property capable of yielding a sum of at least three hundred pounds per annum, calculated upon a rate of one shilling in the pound on its annual value, and the inhabitants of such municipality then become a corporate body under the name of "the Mayor and Councillors." The Governor may also, by proclamation, define the boundaries of a municipality; divide a municipality into wards, and define their boundaries; unite contiguous municipalities into one, or sever portion of a municipality, either declaring such portion to be a new municipality or annexing it to some other contiguous municipality or road board. He may also, under certain circumstances and conditions, determine or alter the number of councillors constituting a council, declare certain municipalities to be "cities," alter the name or declare the population of any municipality, apportion property, rights, and liabilities, and give any directions necessary to do justice as between municipalities and road boards concerned.

Qualification of Mayor and Councillors.

Every owner or occupier liable to be rated in respect of land of a ratable value of not less than £10 is eligible for election as a mayor or councillor for a municipality, but no councillor is capable of being elected an auditor for the municipality of which he is a councillor.

Disqualifications.—No person is qualified to be elected or hold office as mayor, councillor, or auditor, if a female, or a minister of religion, or a person attainted of treason, or convicted of felony, or perjury, or any infamous crime, or of unsound mind, or a person who has made a composition with his creditors, or a person holding any office or place of profit in the gift or disposal of the council of any municipality, or concerned or participating in any contract or employment with any municipality, or in any works to be done under the authority of any such council. Such disqualification does, however, not extend to any mayor, councillor, or auditor by reason of his being beneficially interested in any newspaper in which the council inserts advertisements, or a shareholder in any duly incorporated company, having at least twenty *bonâ fide* shareholders, during a contract or contracts with any council, or who, in the ordinary course of business, and not pursuant to any written contract, *bonâ fide* sells goods to or does work for such municipality. No person elected to be mayor, councillor, or auditor is qualified to act as such until he has first taken the oath or affirmation of allegiance to the Sovereign.

Supervening Disqualification.—Should any mayor or councillor during his term of office be adjudicated a bankrupt, or make an assignment to or composition with his creditors, or absent himself

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without leave from the meetings of the council for more than four ordinary meetings, or cease to hold the qualifications above specified, he thereby ceases to be qualified to continue to hold office.

Penalty for acting whilst disqualified.—Any mayor, councillor, or auditor who acts in such capacity before he has taken the prescribed oath, or continues to act after disqualifications have supervened, is liable to a penalty of fifty pounds for every such offence.

Qualification of Electors.

Every British subject of the full age of twenty-one years, being resident within the State, and not subject to any legal incapacity, who—

(1.) On the 1st of September in any year owns or occupies ratable land within the municipality or city; and

(2.) Has, on or before the 1st of September, paid all sums due and payable by him in respect of Health Rates, and any rates and assessments ordered to be struck by the council for the then current year,

is entitled to have his name inserted in the municipal electoral list and in the ward electoral list for each ward in which the land is situated; but in no case can both the owner and the person in occupation of ratable land be separately enrolled in respect of such land, the person in occupation having a prior right to be placed on the roll.

Any corporation or firm liable to be rated may, by letter delivered on or before the 1st of September to the town clerk, appoint a person to be enrolled in the place of such corporation or firm. Such person is then, for the purposes of the Act, deemed liable to be rated in respect of land in such municipality of equal ratable value to that for which the corporation or firm is liable to be rated.

Where more persons than one are jointly liable to be rated, such persons may, by writing under their hands delivered to the town clerk on or before the 1st September, appoint one of their number to be enrolled in respect of such land, and such person is then, for the purposes of the Act, deemed liable to be rated in respect of such land.

Elections.

Election of Council and Auditors.—The mayor and auditors are elected by the persons whose names are on the Municipal Electoral List in force for the time being within the municipality, and at any such election, as also when voting upon the question of any proposed loan, each person has a number of votes according to the

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ratable value of the land which he or she owns or occupies, under the following scale:—

Ratable Value of Land.	Number of Votes.
Twenty-five pounds and under	One
Over twenty-five pounds and not exceeding fifty pounds	Two
Exceeding fifty pounds and not exceeding seventy-five pounds	Three
Exceeding seventy-five pounds	Four

The councillors for each ward are elected by the persons whose names are on the Ward Electoral List; and at such elections each person has one or two votes according to the ratable value of the land which he or she owns or occupies within such ward, under the following scale:—

Ratable Value of Land.	Number of Votes.
Fifty pounds and under	One
Exceeding fifty pounds	Two

Preparation of Electoral Lists.—On or before the 20th of September in each year the town clerk makes out a list called "The Voters' List," containing the names of all persons entitled to have their names inserted in the "ward electoral list" as voters at the election of councillors; and also of all persons entitled to have their names inserted in the "municipal electoral list," as voters at the election of a mayor and auditors, the list being arranged according to the alphabetical order of surnames. Each list is signed or initialled by the mayor, and a copy of the same is affixed on some building in each ward.

Appeals against Voters' Lists as prepared.—On or before the 30th of September, any person:—

(*a.*) Whose name has been omitted from the electoral lists may apply by letter, addressed to the town clerk, to have his name inserted, giving particulars of his claim;

(*b*) Whose name has been inserted in the electoral lists as a voter, and who is dissatisfied with such lists as not specifying the full ratable value of his land, may likewise apply to the town clerk to have the amount of the ratable value altered, giving particulars of his claim;

(*c.*) Whose name appears on the electoral lists, or who claims to have his name inserted, may object to any other person as not being entitled to have his name retained thereon; or as not being entitled to have the number of votes set against his name;

(*d.*) Whose name has been omitted from the electoral lists, and who claims to be entitled to have a vote or votes for any ratable land for which the name of some other person is entered in the lists, may likewise apply to the town clerk to have his name substituted for the name of such other person.

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The mayor causes lists to be made showing the names and addresses of the persons who claim to have their names inserted on the electoral lists, or to have the amount of the ratable value of the lands altered, and the particulars of such claims; and also a list of the persons whose names, or the ratable value of whose lands have been duly objected to. A copy of every such list, with appropriate headings to the same, showing the contents thereof, is then affixed on some building in each ward on or before the 3rd of October.

Revision Court.—The council holds an open Revision Court within the municipality for the purpose of revising the electoral lists at such time and place as may be appointed by the mayor, between the 10th and 20th of October (both inclusive); the mayor is required to give six clear days' notice of the holding of such court by placing a notice on some building within the municipality, and by advertisement in some local newspaper. The Revision Court consists of the mayor of the municipality, or, in his absence, of a chairman appointed by the other members of the court, and of not fewer than one-third of the members of the council.

The Revision Court has authority to hear, receive, and examine evidence, and, by summons under the hand of the mayor, require all persons as the court may think fit to appear personally before such court, at a time and place to be named in the summons, and to produce to the court all books and papers in their possession or under their control as may appear necessary for the purpose of their examination; and the court, by the decision of the majority, determines upon the validity of all claims and objections.

The court amends the voters' lists in accordance with its own decision upon each appeal, and also expunges the names of all persons who are proved to be dead, and, by means of inspection of the voters' list, rate-book, and valuation returns, corrects any mistake, or supplies any omission which appears to the court to have been made in any of the lists in respect of the name, place of abode, or trade or occupation of any person, or in respect of the local description of the ratable property, or its situation or ratable value; but no person's name may be inserted by the court in any list, or, except in case of death, be expunged therefrom, unless due notice has been given as required under the provisions of the Act.

Certificate of revised Voters' List.—The mayor, in open court, writes his initials against the names struck out or inserted, and against any part of the list in which any mistake may have been corrected or omission supplied; and also initials every page of the list so settled, and then causes to be written at the foot or end of the list a certificate, signed by himself and at least two members of the court, that the same has been revised and is correct, with the date thereof.

Electoral Roll.—The list so signed and certified is delivered to the town clerk, who is required to copy the names of the electors in

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alphabetical order in a roll or book, and prefix to every name a number, beginning at the first name on the roll with the number one, and continuing the numbers on in regular arithmetical series to the last name; and he is also required to cause a sufficient number of copies of the roll to be printed, to sign the said roll, and to deliver it to the mayor.

The printed roll, so signed, is both the ward electoral list or roll and municipal list or roll for the municipality, and continues in force until new lists or rolls have been made, under the provisions of the Act.

New Municipalities.

In the case of any newly proclaimed municipality where there is no council, the necessary action, as required by the Municipal Act to be performed, connected with the preparation, settling, and revision of the electoral lists, is taken by persons appointed by the Governor, who may also appoint and fix the date on or before which the prescribed applications and objections may be lodged in respect of such lists.

Time of holding Elections.—The first election of mayor, councillors, and auditors in a newly constituted municipality must be held on a day appointed by the Governor not less than forty days after such constitution.

In every municipality the annual election of mayor, auditors, and councillors is held on the third Wednesday in November in each year.

At this annual election, except when other provision has been made, one-third of the whole number of councillors assigned to the municipality and the mayor and auditors are elected, and, in case of a municipality divided into wards, the councillors are elected in equal numbers for each ward.

Any extraordinary vacancy in the council of any municipality is filled on such day as may be appointed under the Act for holding an election for the purpose.

THE COUNCIL.

The council holds two ordinary meetings of ratepayers a year, namely, in the months of May and November; the one held in the month of November, called the annual meeting, is required to take place at least one week before the day of the annual election; whilst special meetings may also be held upon any date to be fixed on the requisition of at least one-third of the members of the council, or upon the request in writing of twenty-one ratepayers.

The council must hold ordinary meetings for the transaction of general business at the office of the council at least once in each month.

The mayor may call a special meeting of the council as often as he thinks proper, and is bound to call such meeting on receiving

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a requisition for that purpose, signed by at least one-third of the members of the council.

The council may from time to time appoint committees of councillors, of which the mayor is *ex officio* a member, and may fix the quorum for such committees. It may delegate to any committee such of its powers and duties as it thinks fit, and from time to time make rules for the guidance of committees; it may also remove members thereof, and appoint in their stead other councillors. A member of any committee may resign, and the resignation is complete on the same being handed to the town clerk.

A committee may appoint a sub-committee of its members to execute and discharge any of the powers and duties of such committee; but the acts of such sub-committee must be submitted for approval to the committee by which the sub-committee was appointed.

Principal and more important Powers of the Council.

By-Laws.—The council has powers to make, alter, modify, amend, or repeal by-laws for the municipality, subject to the provisions of the Municipal Act. The specific purposes for which by-laws may be made are enumerated in the Act, and apply generally for more effectually regulating, observing, and carrying out all the powers and authorities given to the council by the Act, for insuring the good administration of the municipality, the convenience, comfort, and safety of the inhabitants, and the prevention and suppression of nuisances.

Licenses.—The council may grant licenses within a municipality to persons for any of the following purposes:—

(*a*) For the erection and use of bathing-houses, sheds, or machines;

(*b.*) For carrying on the trade of cowkeepers, dairymen, or purveyors of milk;

(*c.*) For keeping and depasturing goats and keeping pigeons;

(*d.*) For the hawking of fruit, fish, and vegetables, or any article of merchandise;

(*e.*) For movable or temporary fixed stalls in or near any street for the sale of meat, fruit, vegetables, drink, eatables, or articles of merchandise;

(*f.*) For the driving and keeping of passenger vehicles, tram and motor cars, wagons, drays, carts, or other vehicles for the carrying of goods and merchandise;

(*g.*) For the removal of the contents of any drain, water-closet, earth-closet, privy, cesspool, ashpit, or other place used for a similar purpose, or of any noxious or offensive matter;

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(*h.*) For the erection or use of slaughter-houses;

(*i.*) For carrying on the trade or calling of a chimney-sweep;

(*j.*) For driving and depasturing horses, sheep, cattle, pigs, goats, camels, asses, or mules over and upon park lands and public reserves;

(*k.*) For the use and employment of hand-carts in streets or ways;

(*l.*) For keeping and maintaining any suitable premises as a bazaar or repository for the sale therein of horses, cattle, carriages, and other vehicles, or any of them, respectively, as the council may deem proper;

(*m.*) For the appointment of general porters;

(*n.*) For the erection in any public place of one or more machines or engines, with a suitable house or building thereto, for the weighing of vehicles conveying any goods or merchandise whatsoever;

(*o.*) For carrying on the trade or business of a condenser of water;

(*p.*) The council may grant licenses under the Cart and Carriage Licensing Act, 1876.

(*q.*) For the posting of bills or painting advertisements upon buildings, fences, verandahs, or any other place abutting upon or facing into any street or way;

(*r.*) For the opening of streets, ways, or footways;

(*s.*) For the cutting, collecting, or removing of timber, firewood, stone, or other material from or on public reserves or commons.

And the council may fix the fees for all licenses, and prohibit unlicensed persons from carrying out any business or doing any act for which a license should be granted.

Noxious Trades.—When an occupation or business, established within a municipality, becomes of so offensive a nature as to be a public nuisance, the council has power to agree with the person or company carrying on the occupation or business either to discontinue it or to carry it on at such distance from the boundaries of the municipality as may be mutually agreed upon, and the council may give out of the municipal fund reasonable compensation by way of consideration, if necessary.

Dancing Saloons.—The council may, on the application of twenty householders, resident in the immediate neighbourhood, license any room or saloon, not licensed under "The Wines, Beer, and Spirit Sales Act, 1880," or its amendments, as a dancing room or saloon where payment may be received for admission.

Lands and Property.—A council may, with the consent of the Governor, sell any lands acquired by such municipality which are

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not, in the opinion of the council, required for the purpose of the undertaking for which they were acquired.

A council may also let or lease any lands granted by the Crown, or any reserves or commonages for the holding of sports, on terms and conditions laid down by the council; should, however, the length of the lease exceed three years, the consent of the Governor must first be obtained.

Contracts.—The council may, in the name and on behalf of the municipality, enter into contracts for the purposes of the Municipalities Act, and every such contract may be made, varied, or discharged as prescribed by the Act.

Power to take Land for Works and Undertakings.—Subject to the provisions of the Municipal Act, the council may, with the consent of the Governor, take land compulsorily within the municipality for the purpose of executing any of the works and undertakings authorised by the Act, compensation for such resumed land to be allowed in the manner prescribed by the Land Resumption Acts of 1894 and 1896.

Dedication of Public Highways.—At the request of the council, the Governor may declare any land, reserved, used, or by purchase or exchange acquired for a street or way, to be a public highway.

The Making, Maintenance, and Management of Streets, Bridges, Ferries, Water-courses, etc.—The council may make, improve, maintain, alter, level, grade, extend, pave, light, water, cleanse, repair, keep in good order and condition, and otherwise improve all public places, streets, ways, bridges, culverts, jetties, ferries, wharves, and other premises within the municipality; and plant and maintain trees on such public places and streets or ways as seem proper; and make and keep in good order and condition all sewers, gutters, drains, and water-courses along or under public places, streets, ways, wharves, and jetties, for carrying off the water, mud, or filth, and again remove or alter the same as occasion requires; and place bars and other fences across or along public places, streets, ways, wharves, or jetties when under or preparatory to their alteration or repair; and erect posts or railings, and suspend chains for guarding footways, gutters, or the like, and generally do and make all acts and things necessary and proper for accomplishing the purposes mentioned. The council may also, subject to the provisions of the Act, open new streets and roads, use steam road rollers on any road, cause streets to be watered, close roads for repair, impound cattle, make water-courses, assign numbers to each house, give consent to posting bills etc. in any public place, lease ends of streets for wharves, etc., etc.

Fixing the Level of Streets, Ways, Private Streets, Filling up low Ground.—The council may fix, raise, sink, or otherwise alter the alignment or level of any street, cause footways to be flagged, kerbed, and paved at the expense of the owner, determine the width

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of all footpaths, fix crossing places over footpaths on either side of any street, improve park lands, appoint and fix carriage stands, etc., etc.

Sewerage.—The council may cause any necessary sewers or drains to be made, but are responsible for keeping them in such order as not to become a nuisance or injurious to health.

Lighting.—The council may, by contract or otherwise, cause the streets and public places to be lighted with gas, oil, electric light, etc., but no contract for the supply of light for a term exceeding three years can be entered into without the consent of the Governor.

Water Supply, Fires.—The council may, in the interests of the public, restrain anyone from draining lakes, etc.; may construct and maintain dams, tanks, and reservoirs, and lay down mains, pipes, and fireplugs to secure a constant and ample water supply in case of fire; and may establish fire brigades, and equip them with the necessary machinery.

Baths, Wash-houses, etc.—The council may erect buildings to be used as public baths and wash-houses, and make by-laws in connection with their use; also, construct fountains, urinals, and privies in public places, and manage fountains or watercourses rendered available for public use.

Pounds and Abattoirs.—The council may construct and erect buildings, fences, and appliances necessary for pounds and abattoirs, lease or purchase land necessary for such purposes, and make by-laws for all purposes connected therewith.

Weighbridges and Markets.—The council may erect weigh-bridges within the municipality, provide market places, and construct market houses or other conveniences for the purpose of holding markets; provide houses and make convenient places for weighing carts; make convenient approaches to markets; lease markets for any term of years, with the consent of the Governor; and provide all matters and things necessary for the convenient use of markets and weigh-bridges.

Striking Rates.—The council may, when found to be necessary, order a general rate to be struck not exceeding 1s. 6d. in the £ in any one year upon the annual value of ratable land.

By "The Municipal Institutions Act Amendment Act, 1904" the following powers were added to those already possessed by the councils under the principal Act, and made retrospective from the time of the passing of the Act of 1895, viz:—

(1.) To work quarries acquired by the council, and to employ persons, and to provide machinery, apparatus, horses, and plant in and for such work;

(2.) To defray the cost and expenses of and incidental thereto out of the ordinary income of the council; and

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(3.) To use the stone or other material obtained from any quarry for the purposes of the municipality.

FINANCE.

Annual Estimates.—During the month of November the council prepares two statements in writing, signed by the mayor, the one showing the various works and improvements which have been effected during the past year, and the other showing those proposed to be undertaken during the current year, and the estimated cost thereof. In December the council may determine how far, if at all, they will adopt the statement last mentioned. The council may also during that month estimate, as nearly as may be, the amount which will be required to meet the liabilities of the municipality, and to carry out the plan for the current year, and otherwise to carry into effect the provisions of the Municipal Act, and how far the sources of its ordinary income, independently of rates, will be sufficient for that purpose, and what sum will be required to make up any deficiency that may be found to exist on comparing the sum required with the estimated revenue of the municipality, independently of rates. After ascertaining such sum the council decides upon the "General Rate" required to be struck to make good the deficiency, which rate, however, must not exceed 1s. 6d. in the pound, upon the annual value of all ratable property. The council of any newly-proclaimed municipality may exercise the powers and carry out the duties and obligations granted to and imposed upon a council as soon after their election as may be practicable, having regard to the intervals of time respectively assigned for the doing of any act under the provisions of the Municipal Act. The council of any newly-proclaimed municipality may therefore prepare a statement and an estimate in respect to the remaining period of the then current year, and any rate struck shall be payable only in proportion to the unexpired period of the year.

Funds and Revenues.—The ordinary income of a municipality is made up of—

The rents, issues, profits, and dues arising from or out of any real or personal property of whatsoever description belonging to the municipality, together with any fines or penalties that are payable in consequence of any injury done to the same;

Fees, profits, or rents arising from or out of any land, reserves, or commonages;

All dues and fees authorised by the Governor to be exacted in respect of any building, erection, or work placed by the Governor under its control or management;

All fees for licenses granted;

All fees for licenses and registrations, which by any Act or Ordinance are granted, or the fees whereof are made payable to any municipality or town trust;

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All fines and penalties which by any Act or Ordinance are made payable to any municipality or town trust, excepting so much as is payable to any informer;

All fines and penalties incurred and recovered under the provisions of "The Police Act, 1892," within the municipality, excepting so much as is payable to any informer;

All fines and penalties that are incurred and recovered under the provisions of the Municpal Institutions Act, within the municipality;

All moneys payable in respect of any general rate struck under the provisions of the above Act.

Government Subsidies.

In addition to the income derived by municipalities from the above enumerated sources, large sums of money have since 1892 been annually appropriated by Parliament to supplement the municipal revenues. These votes have been allocated at a certain rate per pound sterling on the amount of the general rates collected. The actual *rate* of subsidy varied, however, from 10s. to 20s. per pound sterling of general rates, whilst special grants were also from time to time paid in lump sums for specific works and purposes.

With a view to placing the whole matter of subsidising the municipalities on a systematic basis, a scheme was formulated by the Government in 1903, which provided for an automatic allocation to each municipality of its fair share of the moneys voted by Parliament for such purpose, and the provisions of that scheme are now acted upon.

The general principle underlying the new system is that of encouraging self reliance by offering proportionately larger subsidies, in comparison to the increasing ratio of the general rate struck, whilst at the same time discouraging amongst local bodies the existing tendency to expect the Government to provide the funds required for almost every want.

The general conditions of the scheme are that:—

(1.) The amount of annual subsidy allotted will be the only subsidy a municipality can expect from the Government, and is intended to cover the latter's contributions towards *all* works and purposes within the municipal area which are of a *municipal* nature.

(2.) To entitle any council to participate in the allocation of the annual Parliamentary vote, the council must have levied a minimum general rate of 1s. in the Pound, and have collected not less than £300 for the year from such general rate.

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(3.) Newly constituted municipalities are, during their first year of existence, dealt with apart from the provisions of the general scheme, and are allowed a subsidy of £2 for every £1 of general rate collected; but in every subsequent year they are only allowed to participate according to the detailed provisions of the general classification and grading scale.

As, however, in the past, certain municipalities were allowed to be formed, in which the minimum of £300 per annum cannot at present be derived from a rate of 1s. in the pound, it has been decided that, as these municipalities were already in existence at the time of the scheme being formulated, they are to be allowed to participate in the grants to the extent their income from the general rate will permit, notwithstanding the fact that the amount of such general rate collected does not reach the minimum of £300.

The following tables show the provisions made for the classification of the municipalities, and the basis upon which the subsidy is in each case allocated.

Classification of Municipalities.

Classes.	Income from General Rates.
First	Over £20,000, but not exceeding £30,000 *
Second	„ £10,000 „ „ £20,000
Third	„ £5,000 „ „ £10,000
Fourth	„ £500 „ „ £5,000
Fifth	Under £500

* No subsidy will be paid on income from general rates exceeding £30,000.

Grading of Rates of Subsidies.

Amount of General Rate struck in the Pound sterling.	Subsidy per Pound sterling of amount of General rates collected by Municipality.				
	First Class.	Second Class.	Third Class.	Fourth Class.	Fifth Class.
	s. d.	s. d.	s. d.	s. d.	s. d.
1s. (minimum)	7 0	10 6	14 0	15 9	17 6
1s. 1d.	7 6	11 3	15 0	16 10½	18 9
1s. 2d.	8 0	12 0	16 0	18 0	20 0
1s. 3d.	8 6	12 9	17 0	19 1½	21 3
1s. 4d.	9 0	13 6	18 0	20 3	22 6
1s. 5d.	9 6	14 3	19 0	21 4½	23 9
1s. 6d. (maximum)	10 0	15 0	20 0	22 6	25 0

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Valuation.—The council may, before or in December of each year, make a valuation of all ratable land upon the principles set out in the Municipal Act, such valuation to remain in force until a fresh valuation has been made.

No.	Name of Municipality.	Valuation of Ratable Property in force for Year 1901-1902.											
		Date when completed.	Annual Value.										
			Improved Property.			Unimproved Property.			Total.				
			£	s.	d.	£	s.	d.	£	s.	d.		
1	Albany	Dec. 1, 1901	19,732	0	0	5,000	0	0	24,732	0	0		
2	Beverley	Dec., 1898 ...	919	19	0	795	11	0	1,715	10	0		
3	Boulder	Dec. 18, 1901	68,696	0	0	2,492	0	0	71,188	0	0		
4	Broad Arrow ...	Nov. 27, 1901	*a*			*a*			5,496	10	0		
5	Bulong	Nov. 27, 1901	3,084	0	0	387	0	0	3,471	0	0		
6	Bunbury	Nov. 21, 1901	*a*			*a*			20,950	0	0		
7	Busselton... ...	Oct. 30, 1901	3,541	18	3	115	2	0	3,657	0	3		
8	Carnarvon ...	Dec., 1901 ...	1,550	0	0	150	0	0	1,700	0	0		
9	Claremont ...	Dec., 1, 1900	12,350	0	0	10,851	10	0	23,201	10	0		
10	Collie	Nov. 18, 1901	8,306	5	7	1,365	12	6	9,671	18	1		
11	Coolgardie ...	Nov. 23, 1901	40,520	0	0	5,637	0	0	46,157	0	0		
12	Cossack	1896 ...	2,043	0	0	210	0	0	2,253	0	0		
13	Cue	Sept. 10, 1901	*a*			*a*			12,060	0	0		
14	Day Dawn ...	Dec. 11, 1901	6,493	0	0	507	0	0	7,000	0	0		
15	Esperance ...	Dec., 1901 ...	2,438	0	0	2,703	0	0	5,141	0	0		
16	Fremantle ...	Dec. 10, 1901	117,542	0	0	11,854	0	0	129,396	0	0		
17	Fremantle, East	Nov., 1901 ...	14,487	10	0	7,579	0	0	22,066	10	0		
18	Fremantle, North	Sept. 12, 1901	*a*			*a*			19,206	0	0		
19	Geraldton ...	Dec. 3, 1901	16,484	16	10	2,639	5	0	19,124	1	10		
20	Gingin	April, 13, 1899	568	0	0	440	10	0	1,008	10	0		
21	Guildford... ...	Dec. 31, 1901	*a*			*a*			12,490	17	6		
22	Kalgoorlie ...	Nov. 28, 1901	*a*			*a*			108,497	0	0		
23	Kanowna	Dec. 9, 1901	10,874	0	0	791	0	0	11,665	0	0		
24	Kookynie*b* ...	...	...			...			...				
25	Leederville ...	Dec., 1901 ...	*a*			*a*			18,332	0	0		
26	Leonora	Dec. 16, 1901	10,593	12	0	1,714	0	0	12,307	12	0		
27	Malcolm	Dec. 8, 1901	6,930	0	0	370	0	0	7,300	0	0		
28	Menzies	Dec. 18, 1901	*a*			*a*			19,244	0	0		
29	Midland Junction	Nov. 30, 1901	9,711	0	0	7,861	0	0	17,572	0	0		
30	Mount Magnet ...	Nov. 6, 1901	4,828	0	0	329	0	0	5,157	0	0		
31	Mount Morgans ...	Dec. 23, 1901	*a*			*a*			13,067	18	0		
32	Nannine	Dec. 21, 1901	2,268	0	0	837	0	0	3,105	0	0		
33	Newcastle ...	Dec. 2, 1901	*a*			*a*			2,820	10	0		
34	Norseman ...	Dec. 10, 1901	4,266	0	0	1,249	0	0	5,515	0	0		
35	Northam	Dec. 11, 1901	15,028	0	0	5,009	10	0	20,037	10	0		
36	Paddington ...	Nov. 5, 1901	*a*			*a*			1,855	0	0		
37	Perth	Dec. 20, 1901	*a*			*a*			297,132	0	0		
38	Perth, North ...	Dec., 1901 ...	7,148	0	0	13,184	0	0	20,332	0	0		
39	Perth, South ...	...	...			...			*c*				
40	Roebourne ...	Dec. 20, 1901	3,003	3	0	288	2	0	3,291	5	0		
41	Southern Cross ...	Dec., 1901 ...	5,195	0	0	1,040	0	0	6,235	0	0		
42	Subiaco	Nov. 19, 1901	16,259	0	0	10,557	0	0	26,816	0	0		
43	Victoria Park ...	Nov. 21, 1899	*a*			*a*			15,654	1	9		
44	York	Nov. 6, 1901	7,670	0	0	3,425	0	0	11,095	0	0		
	Total ...	...	*a*			*a*			1,068,717	4	5		

a. Information not supplied. *b*. Not working during 1901-2. *c*. No valuation made for 1901-2.

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Rates Levied.

No.	Name of Municipality.	Rates levied during the Year ended 31st October, 1902.			
		General Rate in the £.	Special Rates in the £.		Total Rates in the £.
			Loan Rates.	Water Rate.	
		s. d.	s. d.	s. d.	s. d.
1	Albany	1 3	0 7	...	1 10
2	Beverley	1 0	...	...	1 0
3	Boulder	1 6	0 6	...	2 0
4	Broad Arrow	1 0	...	...	1 0
5	Bulong	1 0	...	...	1 0
6	Bunbury	1 1½	0 6	...	1 7½
7	Busselton	1 6	...	...	1 6
8	Carnarvon	1 0	...	1 0	2 0
9	Claremont	1 2	0 4	...	1 6
10	Collie	1 3	...	...	1 3
11	Coolgardie	1 6	...	...	1 6
12	Cossack	0 9	...	...	0 9
13	Cue	1 0	...	...	1 0
14	Day Dawn	1 0	...	...	1 0
15	Esperance	1 2	...	...	1 2
16	Fremantle	1 5½	0 7	...	2 0½
17	Fremantle, East ...	1 1	0 6	...	1 7
18	Fremantle, North ...	1 3	0 8	...	1 11
19	Geraldton	1 0	1 0	...	2 0
20	Gingin	*a*	...	...	*a*
21	Guildford	1 6	...	...	1 6
22	Kalgoorlie	1 4	1 0	...	2 4
23	Kanowna	1 3	0 3	...	1 6
24	Kookynie *b*	...	...	...	...
25	Leederville	1 2	0 10	...	2 0
26	Leonora	1 6	...	...	1 6
27	Malcolm	1 4	...	...	1 4
28	Menzies	1 3	...	...	1 3
29	Midland Junction ...	1 3	...	...	1 3
30	Mount Magnet... ...	1 4	...	...	1 4
31	Mount Morgans ...	1 0	...	...	1 0
32	Nannine...	0 6	...	...	0 6
33	Newcastle	1 0	...	...	1 0
34	Norseman	1 5	...	...	1 5
35	Northam	1 6	0 2¼	...	1 8¼
36	Paddington	1 0	...	...	1 0
37	Perth	1 6	0 6	...	2 0
38	Perth, North	1 0	...	...	1 0
39	Perth, South	...	...	...	*c*
40	Roebourne	1 0	...	...	1 0
41	Southern Cross ...	1 0	...	...	1 0
42	Subiaco	1 3½	0 6	...	1 9½
43	Victoria Park	1 1½	0 5	...	1 6½
44	York	1 3	...	...	1 3

a. 1s. in the £ on improved and 1s. 6d. on unimproved property. *b.* Not working during 1901-2. *c.* No rates levied during 1901-2.

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Actual Revenue of Municipalities, including moneys received on account of Loans floated. for the Financial Year ended 31st October, 1902.

No.	Name of Municipality.	Rates.	Government Grants received.	Gross proceeds of Loans raised during the year.	All other Receipts.	Total Revenue.
		£	£	£	£	£
1	Albany	2,200	2,217	...	691	5,108
2	Beverley	60	211	...	19	290
3	Boulder	7,874	6,909	...	12,028	26,811
4	Broad Arrow ...	209	57	...	70	336
5	Bulong	190	225	...	277	692
6	Bunbury	1,509	1,198	...	1,137	3,844
7	Busselton	223	188	...	69	480
8	Carnarvon	234	46	...	234	514
9	Claremont	1,688	1,388	2,501	772	6,349
10	Collie	347	560	...	210	1,117
11	Coolgardie	2,921	2,393	...	1,244	6,558
12	Cossack	69	57	...	32	158
13	Cue	614	771	...	1,445	2,830
14	Day Dawn	328	180	...	264	772
15	Esperance	279	222	...	27	528
16	Fremantle	13,587	8,933	20,005	5,322	47,847
17	Fremantle, East ...	1,651	1,814	...	373	3,838
18	Fremantle, North ...	1,720	1,030	6,060	873	9,683
19	Geraldton	2,570	1,375	...	1,298	5,243
20	Gingin	24	172	...	18	214
21	Guildford	915	1,171	3,045	329	5,460
22	Kalgoorlie	11,830	8,533	...	19,396	39,759
23	Kanowna	889	963	...	719	2,571
24	Kookynie*	...	...	...	...	...
25	Leederville	1,828	2,290	...	529	4,647
26	Leonora	769	932	...	518	2,219
27	Malcolm	430	594	...	130	1,154
28	Menzies	943	713	...	316	1,972
29	Midland Junction ...	1,066	1,350	2,321	178	4,915
30	Mount Magnet ...	292	299	...	126	717
31	Mount Morgans ...	578	634	...	147	1,359
32	Nannine	53	46	...	28	127
33	Newcastle	124	90	...	44	258
34	Norseman	398	471	...	134	1,003
35	Northam	1,431	1,200	6,250	1,585	10,466
36	Paddington	70	350	...	29	449
37	Perth	29,395	24,688	11,250	9,032	74,365
38	Perth, North ...	671	1,335	...	368	2,374
39	Perth, South ...	332	1,196	...	64	1,592
40	Roebourne	140	122	...	107	369
41	Southern Cross ...	274	500	...	833	1,607
42	Subiaco	2,230	2,309	...	797	5,336
43	Victoria Park ...	1,185	1,154	...	146	2,485
44	York	752	548	...	205	1,505
	Total	94,892	81,434	51,432	62,163	289,921

* Not working during 1901-1902.

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Actual Expenditure of Municipalities during the Financial Year ended 31st October, 1902.

No.	Name of Municipality.	Works and Improvements (including Salaries and Wages in direct connection therewith, and cost of Material, etc.).	Disbursements in respect of Loans (Interest and contribution to Sinking Fund).	Salaries, Office Expenses, Printing, Advertising, etc.	All other Expenditure.	Total Expenditure.
		£	£	£	£	£
1	Albany	2,668	842	448	1,100	5,058
2	Beverley	110	...	49	30	189
3	Boulder	5,059	3,895	1,817	19,383	30,154
4	Broad Arrow ...	111	...	291	182	584
5	Bulong	334	...	130	323	787
6	Bunbury	1,601	607	342	1,878	4,428
7	Busselton	215	...	88	247	550
8	Carnarvon	249	...	304	170	723
9	Claremont	5,358	385	454	1,205	7,402
10	Collie	490	...	311	301	1,102
11	Coolgardie	2,371	...	1,071	3,624	7,066
12	Cossack	157	...	31	24	212
13	Cue	40	...	402	2,114	2,556
14	Day Dawn	268	...	132	280	680
15	Esperance	290	...	143	121	554
16	Fremantle	29,992	5,074	2,063	6,111	43,240
17	Fremantle, East ...	3,914	471	416	1,158	5,959
18	Fremantle, North ...	4,360	786	436	3,219	8,801
19	Geraldton	1,960	1,211	365	1,015	4,551
20	Gingin	270	...	56	2	328
21	Guildford	4,131	156	244	215	4,746
22	Kalgoorlie	7,700	5,094	2,146	23,935	38,875
23	Kanowna	307	175	418	1,205	2,105
24	Kookynie *a*	...	...	...	...	...
25	Leederville	3,194	989	501	838	5,522
26	Leonora	542	...	270	1,384	2,196
27	Malcolm	399	...	296	407	1,102
28	Menzies	274	...	458	1,140	1,872
29	Midland Junction ...	3,932	89	353	493	4,867
30	Mount Magnet ...	264	...	107	277	648
31	Mount Morgans ...	607	...	338	310	1,255
32	Nannine	70	...	62	14	146
33	Newcastle	57	...	78	74	209
34	Norseman	257	...	246	343	846
35	Northam	7,010	248	417	1,756	9,431
36	Paddington	152	...	209	61	422
37	Perth	29,439	12,912	4,417	21,470	68,238
38	Perth, North ...	644	...	335	1,901	2,880
39	Perth, South ...	156	...	201	327	684
40	Roebourne	201	...	124	115	440
41	Southern Cross ...	137	...	186	817	1,140
42	Subiaco	3,860	718	666	1,223	6,467
43	Victoria Park ...	1,538	284	314	341	2,477
44	York	1,033	...	197	552	1,782
	Total ...	125,721	33,936	21,932	101,685	283,274

a Not working during 1901-1902.

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Loans.—Subject to the provisions of "The Municipal Institutions Act, 1900," the council of a municipality may borrow money on the credit of the municipality for permanent works or undertakings, or for the purpose of liquidating the principal moneys owing by the municipality on account of any previous loan.

The amount of money borrowed at any time for permanent works or undertakings must not exceed ten times the average net ordinary annual income of the municipality for the two years terminating with the yearly balancing of accounts next preceding the *Gazette* notice of the loan. In the case of any municipality already indebted, the further amount which may be raised must not exceed the difference obtained by subtracting from ten times the average net income the balance remaining unpaid of any previous loans. The amount of moneys borrowed to liquidate any loan must not exceed the balance of principal moneys owing on account of such loan.

The following are deemed permanent works and undertakings within the meaning of the Act, viz:—

(1.) The opening, making, paving, or partial paving of streets and footways, the diverting, altering, or increasing the width of any streets or footways or the kerbing thereof.

(2.) The raising, lowering, or altering of the ground or soil of any streets.

(3.) The construction, purchase, and establishment of bridges, culverts, ferries, wharves, and jetties.

(4.) The construction, enlargement, and alteration of sewers and drains, and works connected with sewerage and drainage, and the purchase or erection of machinery for the treatment of refuse.

(5.) The construction and purchase of waterworks, or the procuring of a water supply by any means whatever.

(6.) The construction and purchase of tramways, motor-cars, gasworks and electric light plant, or any other works for lighting the municipality.

(7.) The construction and providing of municipal offices, pounds, abattoirs, market places, market houses, fountains, urinals, places for weighing carts and their loadings, and the making convenient approaches to markets.

(8.) The providing of baths and wash-houses.

(9.) The providing of pleasure grounds, libraries, museums, and places of public resort and recreation.

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(10.) The purchase of land and materials, and the making of compensation to the owners of any land purchased for any of the foregoing purposes.

(11.) The purchase of organs and other musical instruments.

(12.) Erection of lamp-posts, lamps, and all necessary connections for lighting a municipality with gas or electricity or otherwise.

(13.) The construction, purchase, or erection of plant, pans, and appliances for the removal and treatment of nightsoil and refuse, or the application thereof to land for the purpose of manuring it.

(14.) The purchase of stone quarries, and construction or erection of machinery and plant in connection therewith.

(15.) The purchase of steam rollers and apparatus and appliances for watering streets, the purchase of land or buildings, and fire engines and any other appliances for preventing and extinguishing fires.

In respect of the matters contained in sections five and six the consent of the Governor, has, however, first to be obtained.

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MUNICIPAL LOANS—AMOUNTS, DATES OF ISSUE, CURRENCIES, RATES OF INTEREST, ETC.

No.	Name of Municipality.	Loan No.	Amount raised by issue of Debentures. £ s. d.	Date of Issue.	Currency. Years.	Rate of Interest. %	Purpose for which the Loan was raised.
1	Albany (a)	1	4,000 0 0	25-5-86	28	6	Works
			2,000 0 0	1-6-86	28	6	Town Hall
		3	4,000 0 0	1-3-98	16	4½	Part redemption of Loans 1 and 2
	Total—Albany	...	10,000 0 0				
2	Boulder	1	5,000 0 0	1-7-99	8	6	Providing Electric Light Plant
		2	5,900 0 0	1-12-00	15	5	Electric Light Plant, Council Chambers, Freezing Chambers, Reservoir, Public Baths, Road Construction, Fire Brigade, Street Watering, and Liquidation of No. 1 Loan
	Total—Boulder	...	10,900 0 0				
3	Bunbury	1	600 0 0	20-9-97	20	4	Permanent Works
		2	6,000 0 0	1-6-98	25	5	Do
		3	2,000 0 0	1-3-01	25	5	Do
	Total—Bunbury ...	...	8,600 0 0				
4	Claremont	1	2,000 0 0	20-2-99	15	6	Road Construction
		2	3,000 0 0	15-5-01	20	5	Road Construction, Baths, and Water Supply
		3	2,500 0 0	15-5-02	20	4½	Roads
	Total—Claremont ...	...	7,500 0 0				
5	Fremantle (b)	1	500 0 0	18-4-83	27	5	Public Works
			500 0 0	18-4-83	27	6	Do
		5	5,000 0 0	31-7-89	20	5½	Roads
		6	19,000 0 0	5-12-94	27	5	Repayment of Loans 2 and 3, and New Works
		7	35,000 0 0	27-7-97	27	4	Repayment of Loan No. 4, and Public Works
		8	15,000 0 0	29-1-01	27	4	Reconstruction of Streets
		9	20,000 0 0	14-5-02	27	4	Construction of Streets and Improvements
	Total—Fremantle ...	...	95,000 0 0				

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6	Fremantle, East	1	3,000 0 0	1-10-99	21	5	Town Hall and Works
		2	4,000 0 0	1-7-00	21	5	Works
	Total—Fremantle, East	...	7,000 0 0				
7	Fremantle, North	1	6,000 0 0	1-9-98	15	5	Construction of various Streets
		2	6,000 0 0	1-2-02	12	5	Municipal Office, Drainage Works, Purchase of Plant for Removal of Nightsoil, and Construction of Roads
	Total—Fremantle, North	...	12,000 0 0				
8	Geraldton	1	4,000 0 0	June, 1889	20	6	Roads and Fire Engine
		2	6,500 0 0	Jan., 1897	20	4½	Roads, Machinery, and Sanitary Plant
	Total—Geraldton ...	...	10,500 0 0				
9	Guildford	1	3,000 0 0	Feb., 1902	20	5	Streets
10	Kalgoorlie	1	10,000 0 0	7-2-98	5	6	Purchase and Installation of Electric Lighting Plant
		2	15,000 0 0	9-11-99	15	5	Electric Light Extension, Swimming Baths, and Works
		3	5,000 0 0	5-9-1900	15	5	City Markets
	Total—Kalgoorlie ...	...	30,000 0 0				
11	Kanowna	1	1,000 0 0	10-8-99	4	5	Installation of Electric Light and Purchase of Plant
12	Leederville	1	7,500 0 0	1-7-99	20	6	Road-making
13	Midland Junction	1	2,300 0 0	1-3-02	20	5	Street Construction and Improvements, Road-making, etc.
14	Northam	1	3,000 0 0	19-1-97	10	4½	Improvements to Streets and other Works
		2	6,250 0 0	1-7-02	21	5	Purchase of Electric Light Works and other Works
	Total—Northam... ...	...	9,250 0 0				

(a) Original amount of No. 1 Loan was £9,000, of which £3,000 was paid off during 1898. No. 2 Loan was also repaid during the same year.
(b) Loans No. 2, 3, and 4 have been repaid.

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MUNICIPAL LOANS—AMOUNTS, DATES OF ISSUE, CURRENCIES, RATES OF INTEREST, ETC.—*continued.*

No.	Name of Municipality.	Loan No.	Amount raised by issue of Debentures.	Date of Issue.	Currency.	Rate of Interest.	Purpose for which the Loan was raised.
			£ s. d.		Years.	/	
15	Perth	1	3,000 0 0	16-5-81	27	6	Road Construction, Lamps, Tar-paving, Public Baths, Municipal Yard, Plant, Parks, and Reserves, etc.
			1,500 0 0	2-9-81	27	5	
			1,500 0 0	16-11-81	27	5	
		2	1,400 0 0	15-5-82	27	5	
			2,500 0 0	16-11-82	27	5	
			2,100 0 0	15-5-84	27	6	
		3	4,000 0 0	15-11-85	27	6	
			1,900 0 0	2-3-87	27	6	
			2,100 0 0	2-9-87	27	6	
		4	10,000 0 0	6-4-88	27	5	
		5	15,000 0 0	1-7-93	27	5	
		6	30,000 0 0	25-4-97	27	5	
		7	80,000 0 0	20-4-99	30	4	
		8	10,000 0 0	29-1-01	30	4	
		9	12,500 0 0	5-8-01	30	4	
			12,500 0 0	5-2-02	30	4	
	Total—Perth	...	190,000 0 0				
16	Subiaco	1	8,000 0 0	8-8-00	20	5	Construction of Roads and Fire Brigade Equipment
		2	2,000 0 0	19-6-01	20	5	Construction of Roads
	Total—Subiaco	...	10,000 0 0				
17	Victoria Park	1	3,500 0 0	1-9-99	15	6	Road-making and Drainage
	Total	...	418,050 0 0				

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Sinking Funds.

When a Municipality has incurred a loan, a sinking fund must be formed to liquidate the same, in the following manner:—

Every year after the issue of the debentures a sum, not less than two pounds per centum of the principal sum is to be invested in the purchase of the debentures of the Municipality, or consols, or Government stock of this State or of any British State or colony in Australasia, or on first mortgage on freehold land, in the joint names of the Colonial Treasurer and of the Municipality, until the complete liquidation of such loan has been effected.

MUNICIPAL LOANS—SINKING FUNDS.

No.	Name of Municipality.	Loan No.	Amount of Loan current on 31st October, 1902.	Accrued Sinking Funds in hands of Trustees on 31st October, 1902.					Net Liability on Loan, 31st October, 1902.
				Invested.		Placed in Banks.		Total.	
				Amount.	At Rate %.	Amount.	At Rate %.		
			£ s. d.	£ s. d.		£ s. d.		£ s. d.	£ s. d.
1	Albany	1	6,000 0 0	2,776 0 0	3½	2 7 10	*Nil*	2,778 7 10	3,221 12 2
		3	4,000 0 0	424 0 0	3½	1 10 10	*Nil*	425 10 10	3,574 9 2
	Total, Albany	...	10,000 0 0	3,200 0 0	3½	3 18 8	...	3,203 18 8	6,796 1 4
2	Boulder (*a*)	2	5,900 0 0	...	...	...	...	...	5,900 0 0
	Total, Boulder	...	5,900 0 0	...	...	...	...	...	5,900 0 0
3	Bunbury	1	600 0 0	30 0 0	3½	7 7 8	*Nil*	37 7 8	562 12 4
		2	6,000 0 0	370 0 0	3½	7 7 8	*Nil*	377 7 8	5,622 12 4
		3	2,000 0 0	40 0 0	3½	0 9 11	*Nil*	40 9 11	1,959 10 1
	Total, Bunbury	...	8,600 0 0	440 0 0	3½	15 5 3	...	455 5 3	8,144 14 9

(*a*.) No. 1 Loan of £5,000 was repaid during 1902.

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MUNICIPAL LOANS—SINKING FUNDS—*continued.*

No.	Name of Municipality.	Loan No.	Amount of Loan current on 31st October, 1902.	Accrued Sinking Funds in hands of Trustees on 31st October, 1902. Invested. Amount.	Invested. At Rate %.	Placed in Banks. Amount.	Placed in Banks. At Rate %.	Total.	Net Liability on Loan, 31st October, 1902.
			£ s. d.	£ s. d.		£ s. d.		£ s. d.	£ s. d.
4	Claremont	1	2,000 0 0	250 0 0	3½	0 8 0	*Nil*	250 8 0	1,749 12 0
		2	3,000 0 0	60 0 0	3½	...	...	60 0 0	2,940 0 0
		3	2,500 0 0	...	...	...	...	...	2,500 0 0
	Total, Claremont	...	7,500 0 0	310 0 0	3½	0 8 0	...	310 8 0	7,189 12 0
5	Fremantle	1	1,000 0 0	547 0 0	3½	0 7 3	*Nil*	547 7 3	452 12 9
		5	5,000 0 0	1,658 0 0	3½	7 11 2	*Nil*	1,665 11 2	3,334 8 10
		6	19,000 0 0	3,400 0 0	3½	0 11 7	*Nil*	3,400 11 7	15,599 8 5
		7	35,000 0 0	3,715 0 0	3½	2 12 9	*Nil*	3,717 12 9	31,282 7 3
		8	15,000 0 0	530 0 0	3½	0 7 8	*Nil*	530 7 8	14,469 12 4
		9	20,000 0 0	...	...	...	...	...	20,000 0 0
	Total, Fremantle	...	95,000 0 0	9,850 0 0	3½	11 10 5	...	9,861 10 5	85,138 9 7
6	Fremantle, East (*a*)	1	3,000 0 0	...	...	...	...	...	3,000 0 0
		2	4,000 0 0	...	...	...	...	...	4,000 0 0
	Total, Fremantle, East ...	...	7,000 0 0	...	...	...	...	...	7,000 0 0
7	Fremantle, North	1	6,000 0 0	460 0 0	3½	8 15 11	*Nil*	468 15 11	5,531 4 1
		2	6,000 0 0	80 0 0	3½	...	...	80 0 0	5,920 0 0
	Total, Fremantle, North ...	...	12,000 0 0	540 0 0	3½	8 15 11	...	548 15 11	11,451 4 1

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8	Geraldton	1 2	4,000 0 0 6,500 0 0	3,273 0 0 1,742 0 0	3½ 3½	1 18 11 1 17 7	*Nil* *Nil*	3,274 18 11 1,743 17 7	725 1 1 4,756 2 5
	Total, Geraldton	...	10,500 0 0	5,015 0 0	3½	3 16 6	...	5,018 16 6	5,481 3 6
9	Guildford (*a*)	1	3,000 0 0	...	...	...	...	...	3,000 0 0
	Total, Guildford	...	3,000 0 0	...	...	...	...	...	3,000 0 0
10	Kalgoorlie	1 2 3	10,000 0 0 15,000 0 0 5,000 0 0	8,443 0 0 2,775 0 0 672 0 0	3½ 3½ 3½	0 0 8 4 8 3 4 2 8	*Nil* *Nil* *Nil*	8,443 0 8 2,779 8 3 676 2 8	1,556 19 4 12,220 11 9 4,323 17 4
	Total Kalgoorlie	...	30,000 0 0	11,890 0 0	3½	8 11 7	...	11,898 11 7	18,101 8 5
11	Kanowna (*a*)	1	1,000 0 0	...	...	...	...	...	1,000 0 0
	Total, Kanowna	...	1,000 0 0	...	...	...	...	...	1,000 0 0
12	Leederville (*a*)	1	7,500 0 0	...	...	...	...	...	7,500 0 0
	Total, Leederville	...	7,500 0 0	...	...	...	...	...	7,500 0 0
13	Midland Junction	1	2,300 0 0	...	...	...	...	...	2,300 0 0
	Total, Midland Junction ...	...	2,300 0 0	...	...	...	...	...	2,300 0 0
14	Northam	1 2	3,000 0 0 6,250 0 0	250 0 0 ...	3½ ...	4 6 3 ...	*Nil* ...	254 6 3 ...	2,745 13 9 6,250 0 0
	Total, Northam	...	9,250 0 0	250 0 0	3½	4 6 3	...	254 6 3	8,995 13 9

(*a*.) The amounts of Sinking Fund shown in the Annual Statements of the Municipalities of East Fremantle (£301 3s 6d.), Guildford (£73), Kanowna (£325) and Leederville (£1,219 4s. 4d.), were not in the hands of the Sinking Fund Trustees on 31st October, 1902.

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MUNICIPAL LOANS—SINKING FUNDS—*continued.*

No.	Name of Municipality.	Loan No.	Amount of loan current on 31st October, 1902.	Accrued Sinking Funds in hands of Trustees on 31st October, 1902. Invested. Amount.	Invested. At Rate %.	Placed in Banks. Amount.	Placed in Banks. At Rate %.	Total.	Net Liability on Loan, 31st October, 1902.
			£ s. d.	£ s. d.		£ s. d.		£ s. d.	£ s. d.
15	Perth	1	6,000 0 0	3,935 0 0	3½	1 6 10	*Nil*	3,936 6 10	2,063 13 2
		2	6,000 0 0	3,540 0 0	3½	4 7 5	*Nil*	3,544 7 5	2,455 12 7
		3	8,000 0 0	3,630 0 0	3½	9 7 9	*Nil*	3,639 7 9	4,360 12 3
		4	10,000 0 0	3,765 0 0	3½	0 11 11	*Nil*	3,765 11 11	6,234 8 1
		5	15,000 0 0	3,075 0 0	3½	3 7 10	*Nil*	3,078 7 10	11,921 12 2
		6	30,000 0 0	3,535 0 0	3½	1 3 4	*Nil*	3,536 3 4	26,463 16 8
		7	80,000 0 0	5,810 0 0	3½	0 2 9	*Nil*	5,810 2 9	74,189 17 3
		8	10,000 0 0	350 0 0	3½	3 10 4	*Nil*	353 10 4	9,646 9 8
		9	25,000 0 0	520 0 0	3½	1 17 6	*Nil*	521 17 6	24,478 2 6
	Total, Perth	...	190,000 0 0	28,160 0 0	3½	25 15 8	...	28,185 15 8	161,814 4 4
16	Subiaco (*a*)	1	8,000 0 0	...	...	...	...	...	8,000 0 0
		2	2,000 0 0	...	...	...	...	...	2,000 0 0
	Total, Subiaco	...	10,000 0 0	...	...	...	...	...	10,000 0 0
17	Victoria Park	1	3,500 0 0	140 0 0	3½	75 5 8	*Nil*	215 5 8	3,284 14 4
	Total, Victoria Park ...	...	3,500 0 0	140 0 0	3½	75 5 8	...	215 5 8	3,284 14 4
	Total	...	413,050 0 0	59,795 0 0	3½	157 13 11	...	59,952 13 11	353,097 6 1

(*a*.) The amount of Sinking Fund shown in the annual statement of the Municipality of Subiaco (£366 4s. 10d.) was not in the hands of the Sinking Fund Trustees on 31st October, 1902.

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Accounts.—The council causes the accounts of the municipality to be balanced half-yearly, up to the 30th day of April and the 31st day of October; and the audit is carried out as soon afterwards as possible.

An annual statement or summary, showing the financial position of the municipality at the end of the previous October, must be prepared by the council, showing on the one side the amount received from each source of ordinary income, and from the special rate (if any) struck, and on the other the various items of expenditure; and in the case of any municipality that has borrowed any money during the year, or has brought forward any borrowed money from the preceding year, a statement must be made, showing on the one side all moneys so received or brought forward, and on the other the application of all such moneys as have been expended, and the amount remaining unexpended and to be carried forward, as well as a statement showing the amount received from any special rate levied in respect of any loan, and the application thereof, and a further statement with respect to each sinking fund, showing as to each of such funds the amount standing to its credit. These statements must be duly audited, and, if found correct, so certified.

The auditors must, if they find any account or statement submitted to them for audit to be erroneous or deficient in any particular, unless such error or deficiency be at once made good by the person or persons liable to make it good, instead of signing such account or statement, forthwith make a statement to the mayor showing in what respects they have found the account or statement erroneous or deficient, and such statement must be published in the *Government Gazette*.

(B.)—DISTRICT ROAD BOARDS.

The whole area of the State, outside incorporated Municipalities, is, for Local Government purposes, divided into Districts, the executive powers being vested in elective Boards.

Originally these Boards were, as indicated by their designation, formed for the purpose of dealing only with the roads of the District; but their authority and powers have gradually been extended by the Legislature, until at present they are Local Governing Bodies, corresponding very closely to the Shire and District Councils of the other States of the Commonwealth.

The Legislative enactments at present governing the administration of the Road Boards are the following, viz.:—

"The Roads Act, 1902" (2 Edw. VII., No. 48); and

"The Roads Act Amendment Act, 1904" (3 Edw. VII., No. 39). Local authority is also vested in the Road Boards in connection with the following Acts, viz.:—

"Parks and Reserves Act,"

"Cattle Trespassing Act,"

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"Width of Tires Act,"

"Cart and Carriage Licenses Act," and

"The Dog Act."

Constitution of Road Boards.

The ratepayers of every Road Board District elect a board numbering seven members. If the district is divided into wards, the Governor has power to increase the number of members to nine, and determine the number of members who are to represent each ward. A duly constituted road board is a body corporate, with perpetual succession and a common seal, and may hold land.

The three members of the board who have been longest in office without re-election go out of office on the third Thursday in March in every year, but are eligible for re-election, if otherwise qualified.

Qualification of Member.

Every adult male, natural born or naturalised subject of the King, who is the owner or occupier of ratable land in the district, is qualified for membership of the road board, subject, however, to the following disabilities:—

No person is qualified to be elected—

(1.) Unless on the day of nomination all sums due in respect of rates upon land in the district, for which he is liable, have been duly paid;

(2.) (*a.*) Who holds any office or place of profit under or in the gift of the board;

(*b.*) Who is concerned or participates in the profit of any contract, with or without employment, under the board otherwise than as a shareholder in an incorporated company;

(*c.*) Who is an undischarged bankrupt;

(*d.*) Who is under sentence for any crime or misdemeanour, or any offence punishable by imprisonment for one year or longer; or

(*e.*) Who is of unsound mind.

Qualification of Electors.

With the important addition that the franchise is extended to females, the qualifications of an elector are nearly similar to those of members, the principal additional proviso being that, to be entitled to vote, the elector's name must be registered on the

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electoral roll, to vote at elections of members. The Roads Act also prescribes that:

(1.) When a district is divided into wards, a person is entitled to vote in each ward in which land qualifying him for the electoral right is situated.

(2.) Each elector has the following number of votes at elections, based upon the annual ratable value or the unimproved capital value (according to the system adopted by the board) of land owned or occupied by him in the district:—

Annual Value.	Number of Votes.
Not exceeding ten pounds	One
Exceeding ten pounds but not exceeding twenty-five pounds	Two
Exceeding twenty-five pounds but not exceeding fifty pounds	Three
Exceeding fifty pounds	Four

Unimproved Capital Value.	Number of Votes.
Not exceeding two hundred pounds	One
Exceeding two hundred pounds and not exceeding five hundred pounds	Two
Exceeding five hundred pounds and not exceeding one thousand pounds	Three
Exceeding one thousand pounds	Four

Electoral Rolls.

A list is made out by the road board before the first of January in each year, containing the names of all persons who appear to be entitled to vote at an election of members of the board. If a district is divided into wards, a separate list is made out for each ward. Later on the board holds an open annual Revision Court on a day appointed, between the tenth and the twentieth of February, both inclusive. Before such court, any person—

(*a.*) whose name has been omitted from the list; or

(*b.*) who is dissatisfied with the ratable value put upon his land;

may have his case dealt with, and any person whose name is on the list may object to the name of any other person being retained on the list or to the ratable value of land placed against the name of any person.

The respective claims are then determined by the Appeal Court, and, after the chairman has, in open court, initialled all the alterations and additions, a certificate is attached to the effect that the

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list is duly revised and is correct, such certificate being signed by the chairman and at least two members of the board.

From this list an officer of the board then prepares the electoral roll of the district, which continues in force until a new roll is made.

Election of Members.

The annual election of members of the board is held in each district on the third Thursday in March, and when a vacancy arises from any cause other than annual retirement, the election to fill such vacancy is held upon a day fixed by the chairman after due notice.

Any person desirous of being a candidate for election as a member of the board must, by himself or his agent, give due notice of such desire, addressed to the chairman, at least seven days before the day of the election, when a notice of such candidature will be posted by the board on the outer door of the board's office.

After the election has taken place according to the provisions of the Act, the names of the persons elected are transmitted to the Government, and notified in the *Government Gazette*.

Proceedings of the Board.

At the first meeting, the board elects one of its members to be chairman, to hold office until the conclusion of the next annual elections.

All servants of the road board are appointed and removed and their duties and remuneration defined by the board.

The board must hold meetings at least once every three months, unless the district is situated northward of the twenty-sixth parallel of South latitude, in which case the ordinary meetings of the board may, with the approval of the Government, be held once every six months.

The minutes of proceedings are to be kept in a book, in which must be specified the attendance of members, names of members voting on each question on which there is a division, and also all resolutions, orders, or other proceedings of the board; such minute-book to be open to inspection to any ratepayer, during office hours, without fee.

The board holds a general meeting of ratepayers at least once a year, and at any other time upon the requisition of seven or more ratepayers.

Powers and Duties of the Board.

The board has, subject to the provisions of the Roads Act, the care, control, and management of the public roads within the

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district, and any such public reserves, parks, recreation grounds, commons, wells, dams, tanks, reservoirs, buildings, machines, implements, etc., as the Governor may direct.

Every resolution of the board having for its object the opening up of a new road or the diversion of an existing road, is subject to confirmation by the Governor, who causes a notification thereof to be published in the *Government Gazette*.

The board has power to do everything necessary for the proper management of the property under their control, and may also construct and maintain tanks, wells, and dams, and bore for water for the purpose of supplying water along any road in the district. Subject to the provisions of the Roads Act, the board has also power to do anything required connected with the proper drainage of roads, the construction and maintenance of bridges, culverts, drains, etc.

The construction of the more important bridges, culverts, etc., is generally undertaken and carried out by the Government, the work, after completion, being handed over to the road board for maintenance and control. Smaller works, involving an expenditure of £100 or less, are carried out by the Boards.

Subject to confirmation by the Governor, the board has extensive powers for making, altering, and repealing by-laws.

Revenue.

The ordinary income of the board is made up of—

(1.) Rents, issues, profits, and dues arising from or out of any real or personal property of the board;

(2.) All fees, dues, profits, or rents arising from and authorised by the Governor to be enacted in respect of any lands, parks, recreation grounds, reserves, commonage, buildings, or public works placed under the control or management of the board;

(3.) All fees for licenses and registrations which by any Act are made payable to the board;

(4.) All fines and penalties incurred and recovered under the provisions of this Act within the district;

(5.) All fines and penalties which by any Act are made payable to the board;

(6.) All moneys payable in respect of any general rate made under the provisions of this Act.

The Government places annually at the disposal of the various road boards grants for the maintenance and construction of works under their control, and pays also an annual subsidy on general rates collected.

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In addition, the Government from time to time provides sums of money appropriated by Parliament for specific purposes. All Government grants are placed to the credit of the board with the Treasury, and operated on by means of orders on the Treasury.

Rates.

The board keeps in a prescribed form a rate-book, in which a record of all ratable land in the district is entered.

In determining the annual value, the board may apply either the yearly net rental at which the land might reasonably be expected to let, or an amount not exceeding five per cent. of the capital value of the land.

If considered desirable, the board may, except in the case of mining leases, adopt a general system of valuation, on the basis of the unimproved value of lands instead of an assessment as above described, and in such case the unimproved capital value of ratable land is inserted in the rate-book in place of the net annual or capital value.

The rate-book is made up on or before the second Saturday in June in each year, except when special extension has been granted, the chairman signing each page and setting his initials against any alteration or erasure. This book is, at all reasonable times, open to inspection by ratepayers.

Any appeal must be lodged with the chairman or secretary within one month after the receipt of notice of the valuation appealed from, together with the amount of rates due. The appellant will receive six days' notice of the hearing of his appeal, and may, if he is not satisfied with the finding of the board, appeal from the decision of the board to the Local Court, but the decision of the latter is final.

Except in cases where the Governor has exempted a district from the levying of rates, a road board must levy a general rate not to exceed, in any one year, 1s. 6d. in the pound on the annual ratable value of land. If the system of valuation is on the basis of unimproved values, the maximum general rate is to be 2½d. in the pound on the capital unimproved values.

Borrowing.

Road boards are only allowed to borrow money for one specific purpose, namely, the construction of new roads. Borrowing power is restricted to certain boards only, and it is necessary for such boards to obtain the approval of the Governor after a petition in favour of the raising of the loan, signed by a majority of the ratepayers, has been presented to him.

When a board proposes to raise a loan, notice of such intention must first of all be published in the *Government Gazette*, and in a

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local newspaper, and the question is then submitted to a general meeting of ratepayers. The notice must contain a statement as to the amount proposed to be raised, the rate of interest, the currency of the loan, and the purpose to which the money is to be applied. Plans and specifications of the intended work are also to be open for inspection at the office of the board.

Within one month from the last publication of the notice, any 20 ratepayers may demand a ballot as to whether the loan is to be raised or not, such ballot to be taken on a day appointed by the Chairman, not less than 21 days after the demand for the ballot has been made, and unless a majority of the ratepayers on the electoral roll then vote in favour of the loan being incurred, the Board may not borrow the money.

The limit of borrowing power of a road board is an amount equal to ten times the average amount of general rates for the two years next preceding the publication in the *Government Gazette* of the notice of the proposed loan.

So long as any borrowed moneys remain unpaid, the board is required to levy a special rate not exceeding 1s. 6d. in the pound on the annual value of ratable property to pay interest and provide a sinking fund.

Accounts and Audit.

The financial year of the road board must coincide with that of the Government, *i.e.*, at the present time, from 1st of July to the 30th of the following June.

A special set of books, approved by the Governor in Council, is issued to the boards free of cost, and it is incumbent upon them to keep these books in a prescribed manner. Such books are open to the inspection, free of charge, of any ratepayer or creditor of the board or any person nominated by the Government. All moneys of the board, with the exception of those granted by the Government, are required to be paid into the board's banking account, which must be operated upon by means of cheques signed by the chairman, and countersigned by another member of the board and the secretary.

The secretary prepares quarterly financial statements signed by the chairman and himself, showing the true state of the finances.

Two auditors are appointed annually—one nominated by the Government and the other elected by the ratepayers. The audit must take place within three months of the close of the financial year, or such extended time as may be allowed, and the statements when audited are published in the *Government Gazette*. The form in which these statements are to be presented has been drawn up so as to provide all the particulars required by the Act, and also all further details required by the Statistical Department for publishing annually the necessary statistics relative to local government.

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Area, Population, Valuation, etc., Calendar Year 1902.

No.	Name of Road District.	Date on which latest alteration of Boundaries was gazetted.	Approximate Area of District on 31st December, 1902.*	Estimated Population on 31st December, 1902.	Total Revenue.	Total Expenditure.	General Rate in the £ levied during the year.
			Square Miles.		£	£	s. d.
1	Albany	10-4-96	4,880	a	1,129	964	...
2	Arthur	10-1-96	3,216	650	538	530	...
3	Arthur, West	14-9-00	1,036	220	522	490	...
4	Ashburton b	22-6-94	26,580	...	...	...	...
5	Augusta b	25-5-00	405·5	...	...	...	...
6	Bamboo...	4-9-96	70,000	95	468	292	...
7	Bayswater	7-6-01	4·5	600	1,898	1,914	1 0
8	Belmont	9-12-98	10	650	2,704	3,743	0 8
9	Beverley	18-10-95	873	900	752	651	...
10	Beverley, East ...	18-10-95	3,236	200	546	357	...
11	Blackwood, Lower ...	19-5-92	1,797	170	530	327	...
12	Blackwood, Upper ...	11-5-00	1,240	400	559	523	...
13	Broad Arrow	15-12-99	814·13	a	1,247	875	1 0
14	Broome	15-11-01	19,289	1,800	226	89	1 0
15	Broome Hill	19-5-92	1,270	500	572	593	...
16	Brunswick	14-9-00	974	3,000	1,851	1,705	0 4
17	Buckland Hill... ...	6-10-99	1·25	1,500	910	924	0 9
18	Bulong	22-12-99	1,131	1,193	809	902	1 0
19	Bunbury	14-12-94	178	1,000	551	376	...
20	Bunbury, Suburban ...	26-5-99	26·35	500	722	691	0 4
21	Canning b	27-11-96	61	...	2,012	1,900	...
22	Capel, Upper	9-6-99	121	550	738	688	0 6
23	Chapman, Upper ...	25-1-01	519	209	814	798	...
24	Chittering	10-1-96	360	311	511	572	...
25	Claremont b	4-10-95	6	...	2,000	2,013	...
26	Collie	14-9-00	384	400	1,064	955	1 0
27	Coolgardie	27-10-99	11,749	4,000	2,747	2,628	1 0
28	Coolgardie, North ...	5-8-98	75,968	8,000	1,563	1,480	1 0
29	Coolgardie, North-East	22-12-99	20,687	3,050	748	742	1 0
30	Cottesloe	25-5-00	1·55	1,400	2,332	2,479	1 0
31	Cuballing c	31-10-02	1,561	...	...	...	...
32	Cue b	20-9-01	3,900	...	552	601	...
33	Dandaraga	27-2-90	2,893	280	339	186	...
34	Dardanup	14-9-00	349	2,000	716	440	...
35	Darling Range b ...	30-4-97	230	...	2,709	2,950	...
36	Drakesbrook	29-4-98	290	900	1,296	1,061	0
37	Dundas	13-9-95	41,960	1,200	1,013	1,135	1
38	Esperance b	9-11-00	15,431	...	903	850	...
39	Fremantle	5-12-02	37	a	3,779	3,166	1
40	Gascoyne, Lower ...	9-2-93	11,131	150	635	735	...
41	Gascoyne, Upper ...	28-5-97	135,925	50	476	137	...
42	Geraldton b	10-2-87	1,043	...	...	...	...
43	Gingin	31-10-02	1,400	800	406	436	...
44	Goomalling	23-7-97	2,162	1,680	1,066	1,060	...
45	Greenbushes	2-2-00	39	1,000	818	738	...
46	Greenhills	15-12-92	733	461	547	558	0
47	Greenough	14-12-00	2,219	1,060	945	1,341	...

* Supplied by Lands Department. a Information not supplied. b No return furnished when applied for. c Board, newly formed, not in full working order during the year.

Area, Population, Valuation, etc., Calendar Year 1902—*continued.*

No.	Name of Road District.	Date on which latest alteration of Boundaries was gazetted.	Approximate Area of District on 31st December, 1902 *	Estimated Population on 31st December, 1902.	Total Revenue.	Total Expenditure.	General Rate in the £ levied during the year.
			* Square Miles.		£	£	s. d.
48	Guildford, West ...	10-5-01	5	350	1,297	1,461	0 9
49	Irwin	25-10-01	1,600	*a*	568	546	...
50	Irwin, Upper	25-10-01	19,300	500	380	338	...
51	Jandakot	7-11-02	67	200	606	681	0 6
52	Jarrahdale	23-5-02	165	1,500	430	219	...
53	Kalgoorlie *b*	19-6-96	647	...	5,752	5,230	...
54	Katanning	19-5-92	1,845	1,000	1,138	1,023	...
55	Kelmscott	14-12-94	199	650	1,078	1,029	0 6
56	Kimberley Goldfields...	10-2-87	47,624	130	626	565	0 9
57	Kimberley, West ...	15-11-01	36,800	350	1,037	969	...
58	Kojonup *b*	19-5-92	1,062	...	579	453	...
59	Marradong *b*	14-5-97	584	...	...	...	...
60	Meckering	14-12-94	2,093	600	740	754	0 6
61	Melville	14-12-00	20	274	2,035	2,072	1 0
62	Minilya...	4-5-00	8,455	*a*	292	513	...
63	Moorumbine	6-7-94	1,268	450	544	472	0 2
64	Mount Magnet *c* ...	20-9-01	43,026	...	...	...	...
65	Murchison	13-10-93	9,675	100	273	539	...
66	Murray	29-4-'98	820	500	1,029	1,110	0 3
67	Nannine	6-12-95	68,270	900	214	447	...
68	Narrogin	22-2-95	6,257	*a*	532	549	...
69	Nelson	19-5-92	2,720	550	675	632	...
70	Northam *b*	18-9-96	396	...	...	...	...
71	Northampton	21-6-01	10,700	658	623	892	...
72	Nullagine	8-7-98	90,438	300	483	467	...
73	Peak Hill	28-5-97	39,600	450	520	562	...
74	Peppermint Grove ...	6-10-99	0·50	670	855	848	1 0
75	Perth	31-10-02	53	*a*	2,386	2,429	0 6
76	Phillips River	9-11-00	106·2	520	1,327	1,411	0 6
77	Pilbara *b*	8-7-98	14,356	...	557	368	...
78	Plantagenet *b*	22-2-95	6,633	...	633	502	...
79	Preston	10-7-96	234	*a*	664	650	...
80	Rockingham	5-2-97	93	250	489	453	...
81	Roebourne	22-6-94	9,100	120	554	329	...
82	Serpentine	23-5-02	192	500	534	576	0 6
83	Sussex	25-5-00	1,062	680	877	1,190	...
84	Swan *b*	31-10-02	458	...	2,077	1,805	...
85	Tableland	3-1-96	16,362	300	613	616	0 6
86	Toodyay	23-7-97	655	*a*	897	643	...
87	Victoria Plains ...	23-7-97	5,133	645	773	495	...
88	Wandering	6-7-94	845	200	531	596	...
89	Wanneroo *c*	31-10-02	170	...	...	...	...
90	Williams *b*	14-9-00	1,010	...	629	579	...
91	Wyndham	10-2-87	32,259	80	484	479	...
92	Yalgoo	3-7-96	8,618	*a*	655	471	0 6
93	Yilgarn	22-2-95	15,625	600	601	606	1 0
94	York	14-12-94	1,090	2,000	1,007	989	0 6

* Supplied by Lands Department. *a* Information not supplied. *b* No return furnished when applied for. *c* Board, newly formed, not in full working order during the year.

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(C.)—LOCAL BOARDS OF HEALTH.

The following statistical information is given of the transactions of the various Local Boards of Health—Municipal and Extra-Municipal—gazetted under "The Public Health Act":—

Municipal Local Boards of Health—Receipts and Expenditure for the Twelve Months ended 31st October, 1902.

No.	Name of Local Board of Health.	Date when Locality was first gazetted as being under "The Public Health Act."	Date on which latest alteration of Boundaries was gazetted.	Government Subsidy. £	s.	d.	Total Receipts. £	Total Expenditure. £
1	Albany	26-1-88	...		...		232	187
2	Beverley *a*	6-3-96	...		...		...	...
3	Boulder *c*	10-12-97	...		...		...	...
4	Broad Arrow	25-9-96	...		...		240	239
5	Bulong	14-8-96	...		...		399	536
6	Bunbury	24-4-93	...		...		519	519
7	Busselton	24-4-93	...		...		215	194
8	Carnarvon	4-5-93	...		...		232	212
9	Claremont	2-4-97	14-2-1902		...		167	191
10	Collie	10-9-97	18-10-1901		...		135	77
11	Coolgardie	16-11-94	...		...		665	729
12	Cossack	8-12-93	...	15	3	2	118	118
13	Cue	8-2-95	...		...		391	391
14	Day Dawn	10-5-95	13-12-1901	200	0	0	1,237	1,136
15	Esperance	8-5-96	...		...		40	36
16	Fremantle	*b* 20-8-86	10-5-1901	587	0	0	1,609	1,749
17	Fremantle, East ...	8-10-97	14-12-1900		...		745	745
18	Fremantle, North ...	20-12-95	29-6-1900		...		392	418
19	Geraldton	5-5-92	...		...		1,478	1,388
20	Gingin *a*	23-11-1900	...		...		...	...
21	Guildford	7-4-87	...		...		469	483
22	Kalgoorlie *c*	15-2-95	...		...		...	...
23	Kanowna	8-5-96	..		...		632	632
24	Kookynie	15-12-99	...	350	0	0	654	315
25	Leederville	4-9-96	...		...		128	126
26	Leonora	14-5-97	...	160	8	3	796	780
27	Malcolm	26-2-97	...	50	0	0	446	452
28	Menzies	6-3-96	...		...		348	579
29	Midland Junction ...	31-1-96	22-8-1902		...		987	1,056
30	Mount Magnet ...	2-10-96	...		...		345	356
31	Mount Morgans ...	4-8-99	...		...		265	201
32	Nannine	29-11-95	...		...		355	345
33	Newcastle	27-4-94	...	150	0	0	210	186
34	Norseman	25-12-96	...	150	0	0	570	447
35	Northam	24-4-93	...		...		715	715
36	Paddington *a*	1-1-97	8-11-1901		...		...	...
37	Perth	*b* 20-8-86	...		...		12,938	13,313
38	Perth, North	10-1-02	...		...		552	495
39	Perth, South	11-6-97	22-8-1902		...		61	42
40	Roebourne	21-11-89	...		...		186	142
41	Southern Cross ...	16-2-93	...		...		873	726
42	Subiaco	22-5-96	...		...		119	227
43	Victoria Park	17-7-96	...		...		55	110
44	York	22-9-92	...		...		182	182
				1,662	11	5	30,700	30,775

a Not working during 1901-2. *b* Date when "The Public Health Act, 1886," was assented to.
c Now merged in Kalgoorlie-Boulder District.

Local Boards of Health outside Municipalities—Receipts and Expenditure for the Year 1902.

No.	Name of Local Board of Health.	Date when Locality was first gazetted as being under "The Public Health Act."	Date on which latest alteration of Boundaries was gazetted.	Government Subsidy.	Total Receipts.	Total Expenditure.
				£	£	£
1	Abbotts	16-12-1898	...	...	232	251
2	Austin Island *b*	10-7-1896	...	...	...	...
3	Bardoc	18-11-1896	13-5-1898	50	61	47
4	Bayswater	25-11-1898	10-1-1902	194	298	214
5	Bellevue *a*	22-8-1902	...	...	...	...
6	Belmont *c*	19-5-1899	...	...	44	32
7	Bonnievale	22-7-1898	...	...	5	11
8	Bridgetown	13-5-1898	...	...	260	212
9	Broome	22-7-1899	7-2-1902	100	457	292
10	Brunswick *b*	30-7-1897	...	...	...	...
11	Burbanks	19-5-1899	23-3-1900	...	36	35
12	Burtville	12-7-1901	...	50	76	61
13	Canning	13-12-1901	31-1-1902	25	67	63
14	Cottesloe	12-3-1897	...	...	285	215
15	Davyhurst	12-7-1901	...	150	180	178
16	Donnybrook	29-4-1898	24-10-1902	25	212	180
17	Euro *b*	...	...	...	...	...
18	Field's Find	12-8-1898	...	...	21	36
19	Fremantle Roads Board District	12-8-1898	29-11-1901	...	71	73
20	Goongarrie	27-11-1896	...	...	*Nil*	20
21	Greenbushes	30-6-1899	...	...	199	175
22	Guildford, West...	10-1-1902	...	...	53	17
23	Gullewa	10-7-1896	...	...	87	86
24	Jarrahdale	30-3-1900	16-11-1900	100	185	194
25	Kalgoorlie-Boulder District ...	8-3-1901	...	500	3,070	2,883
26	Karridale *b*	5-8-1898	23-12-1898	...	...	...
27	Katanning	3-6-1898	...	...	*b* 177	180
28	Laverton	11-4-1899	...	...	*b* 314	341
29	Lawlers	23-7-1897	...	100	448	382
30	Lennonville	17-2-1899	...	...	541	499
31	Meekatharra	12-7-1901	...	...	*Nil*	50
32	Melville	29-11-1901	...	...	28	*Nil*
33	Mertondale	18-8-1899	...	...	13	56
34	Mingenew	29-5-1896	...	...	108	101
35	Mount Ida *b*	5-5-1898	...	...	...	...
36	Mulline *b*	4-12-1896	7-6-1901	...	...	...
37	Mulwarrie	30-11-1900	21-3-1902	50	95	93
38	Mundaring *b*	15-7-1898	...	...	...	...
39	Narrogin *a*	2-5-1902	...	...	...	...
40	Peak Hill...	29-1-1897	...	...	196	182
41	Peppermint Grove *a*	25-4-1902	...	...	...	...
42	Pinjarra *b*	25-8-1899	...	...	...	...
43	Port Hedland *a*	18-10-1901	...	...	...	...
44	Princess Royal	22-2-1901	...	200	614	484
45	Ravensthorpe	29-6-1900	17-1-1902	100	224	154
46	Tuckanarra	29-6-1900	...	100	209	203
47	Wagin	3-6-1898	...	...	46	40
48	Waverley	25-1-1901	20-12-1901	100	103	47
49	Wiluna	12-8-1898	...	...	53	72
50	Windanya *b*	10-9-1897	...	...	...	...
51	Yalgoo	17-4-1896	...	...	242	235
52	Yundamindera	1-2-1901	...	50	221	203

a Not working during 1901-2. *b* No return furnished when applied for. *c* Year ended 31st December, 1902.

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(D.)—FIRE BRIGADES.

Revenue, Expenditure, and Estimated Value of Lands and Buildings and Plant, 1902.

No.	Name of Fire Brigade.	Receipts. Government Grant.	Receipts. Total Receipts.	Total Expenditure.	Estimated Value of Land and Buildings.	Estimated Value of Plant.
		£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1	Boulder City	500 0 0	1,494 13 3	1,494 13 3	1,000 0 0	700 0 0
2	Broad Arrow *d*	...	...	...	...	...
3	Bulong (Volunteer)	...	*Nil*	10 7 6	*b* 60 0 0	200 0 0
4	Bunbury (Municipal)	...	145 2 3	145 2 3	50 0 0	1,000 0 0
5	Coolgardie (Municipal)	...	423 5 1	423 5 1	600 0 0	485 0 0
6	Cue (Volunteer)	153 0 0	284 17 3	284 17 9	300 0 0	500 0 0
7	Esperance (Volunteer)	...	48 14 0	46 5 3	*a*	608 4 11
8	Fremantle	165 10 0	484 19 7	421 15 4	1,750 0 0	960 0 0
9	Fremantle, East	45 16 9	137 13 6	122 12 1	140 0 0	125 12 0
10	Fremantle, North	...	52 2 0	39 9 6	230 0 0	325 0 0
11	Geraldton	...	34 5 10	21 17 0	500 0 0	1,000 0 0
12	Kalgoorlie (Volunteer) *d*	...	...	...	...	...
13	Kanowna *d*	...	...	...	...	...
14	Leederville	250 0 0	314 12 7	140 3 9	*a*	45 0 0
15	Leonora	250 0 0	1,320 6 4	*Nil*	400 0 0	*c* 1,215 0 0
16	Menzies (Municipal)	...	256 13 10	146 11 2	300 0 0	500 0 0
17	Norseman	...	101 4 7	101 4 7	100 0 0	100 0 0
18	Northam (Municipal)	...	97 3 3	97 3 3	180 0 0	300 0 0
19	Perth (Metropolitan)	508 0 6	4,903 3 11	4,282 1 8	11,000 0 0	3,000 0 0
20	Southern Cross *d*	...	...	...	...	...
21	Victoria Park (Volunteer)	25 0 0	52 17 9	59 4 10	80 0 0	142 0 0

a Information not supplied. *b* Value of buildings only. *c* Including water supply works. *d* No returns furnished when applied for.

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6.—ADMINISTRATION OF JUSTICE.

The Supreme Court exercises both Civil and Criminal Jurisdiction. By the Administration of Justice (Civil) Act (24 Victoria, No. 15), it is invested with all the powers of the Courts of Queen's Bench, Common Pleas, and Exchequer at Westminster, and the Equity Jurisdiction of the Lord Chancellor. All powers conferred on any of these Courts or the Lord Chancellor by any Act of Parliament which was in force in England previously to 1st June, 1829, and which is applicable to the special circumstances of the State, may be exercised by the Supreme Court so far as they are unmodified by local statute. This Jurisdiction is confirmed by "The Supreme Court Act, 1880," which practically embodies the provisions of the English Judicature Acts.

These Acts also give the Court full jurisdiction in Divorce and Matrimonial Causes.

Jurisdiction in probate and administration matters is conferred by 3 Edward VII., No. 13 (Administration Act, 1903).

In all cases where the deceased's estate does not exceed £500 applications can be made direct to the Master, but Rule 4 provides that the Master may exercise the powers of the Court in and about the granting of probates and administrations where the estate does not exceed £1,000.

Executors and administrators have to file an inventory within three months, and pass their accounts within twelve months from the date of the grant.

Part 3 of the Act relates to the Sealing of Foreign Probates and Administration.

Part 4 deals with the grants of Orders to Collect, Orders to Sell, and Letters of Administration to the Curator and his duties and powers thereunder.

Part 6 provides for the assessment and collection of duties on deceased persons' estates, and on Deeds of Settlement and Deeds of Gift. All Deeds of Settlement and Deeds of Gift (with the exceptions mentioned in the Act) have to be registered at the Master's Office within three months of the death of the settlor or donor, otherwise they are void.

The right of a litigant to appeal from the Supreme Court of Western Australia to the King in Council is not extinguished by the appellate jurisdiction of the High Court of Australia, which is concurrent with, not exclusive of, the jurisdiction of the King in Council. The conditions governing an appeal from the Supreme Court of Western Australia to the Privy Council are set forth in an Order of Council dated 11th October, 1861, which provides for appeal by leave of the Supreme Court, or by special leave of the Privy Council, from any final judgment, decree, order, or sentence of the Supreme Court, where the subject matter at issue exceeds the

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amount or value of £500, or where any claim or question concerning property or civil right of that amount is involved. The Supreme Court may also grant leave, or the Privy Council may grant special leave, to appeal from any preliminary or interlocutory order or judgment.

The appellate jurisdiction of the High Court of Australia with respect to judgments of the Supreme Court of this State extends to judgments, whether final or interlocutory, where the subject matter at issue exceeds the value of £200, or where any claim or question concerning property or civil right of a like amount is involved, or where the status of any person under the laws relating to aliens' marriage, divorce, bankruptcy, or insolvency is affected, and to any judgments, whether final or interlocutory, or in a civil or criminal matter, where the High Court gives special leave to appeal, and to any judgment of the Supreme Court of the State given in the exercise of Federal jurisdiction in a matter pending in the High Court.

The leave of the Court appealed from is not requisite except in the case of an interlocutory judgment, in which case appeal may also be brought by special leave of the High Court.

Included in this appellate jurisdiction of the High Court are all judgments of the Supreme Court of the State given before the commencement of the Judiciary Act, 1903, as to which leave to appeal to the King in Council might at the commencement of the Act be granted by the Court appealed from, or had then actually been granted, and all conditions of appeal up to then duly complied with, or as to which a petition for special leave to appeal to the King in Council had been lodged and was then pending.

Jurisdiction in Bankruptcy is conferred by "The Bankruptcy Act, 1892" (55 Victoria, No. 32). With some few local differences, the system of Bankruptcy therein contained is that of the English Act and Rules.

By "The Bankruptcy Amendment Act, 1898" (62 Victoria, No. 15), provision has been made for the Administration of Estates without Bankruptcy.

The Act follows Part XI. of "The Insolvency Act, 1886," of South Australia, but makes little change in the system prescribed by "The Bankruptcy Act, 1892."

The following is a brief synopsis of the Amendment Act:—Subsection (*a*) of Section 6 of the original Act was amended by making £30 instead of £50 the minimum amount before commencing proceedings in Bankruptcy.

The Act further provides for "Compositions and Assignments without Bankruptcy." Under this section, a debtor may call a meeting of his creditors, and the Court, after the delivery of the

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notices calling for the meeting, or on the application of a creditor whose debt is not less than £30, may order that all legal proceedings shall cease, but the Court is also empowered at any time to set aside such order.

This order, while in force, has the effect of staying all proceedings until after the meeting or meetings of the creditors.

The meeting, by a vote equivalent to seven-eighths in value, and three-fourths in number of the creditors, may resolve to accept the composition or scheme of arrangement, subject to the approval of the Court. The creditors may resolve, if carried by a vote of three-fourths in value and one-half in number, that the debtor shall execute a deed of assignment to a trustee to be named in such resolution. The Chairman of the meeting may grant a warrant to seize the personal estate of the debtor.

The deed from the debtor to the trustee must be assented to by three-fourths in value and one-half in number of the creditors, every creditor under £10 being recorded in value only.

Under the Act of 1892 the debtor was required to submit his proposal to the "Official Receiver," who called, and presided at, all meetings of the creditors.

The Full Court, as constituted by "The Supreme Court Act, 1880," and the Amending Act (50 Victoria, No. 28), now consists of three Judges, who sit together to hear and determine all appeals from a Judge, or from any order of the Supreme Court or Courts of inferior jurisdiction. By Order LV. of the Supreme Court Rules, it is provided generally that all appeals from Chambers; appeals and proceedings relating to election petitions (whether municipal or parliamentary); appeals from Justices; applications for New Trials, and proceedings on the Crown side of the Supreme Court shall be taken before the Full Court. This order, however, does not abridge the right of a Judge of the Supreme Court to hear and determine any matter which he had previously power to determine.

By the Administration of Justice (Civil) Act, the Supreme Court is constituted a Court of Oyer and Terminer and General Gaol Delivery in and for the State, with the same jurisdiction as to all pleas of the Crown, Prosecutions, and Informations as the High Court of Justice in England, and as Justices of Oyer and Terminer and General Gaol Delivery. The Supreme Court, in its Criminal Jurisdiction, sits monthly, except during the Long Vacation.

By the 9th Victoria, No. 4, provision is made for holding Courts of General Sessions of the Peace at such places as shall from time to time be appointed by the Governor. Such Sessions are now held quarterly at Albany, Broome, Bunbury, Cue, Coolgardie, Derby, Esperance, Geraldton, Kalgoorlie, Roebourne, and Wyndham, and in each case the Government Resident or Resident Magistrate is the

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Chairman of the Court. Such Courts have jurisdiction over all felonies not punishable with death, and all misdemeanours; and also have power to remit for trial before the Supreme Court, at Perth, any crime or offence which by its magnitude or nature ought to be so tried.

By the 50th Victoria, No. 15, the Supreme Court or any court of Quarter Sessions may reserve for the Full Court any question of law arising on the trial.

The Governor has power to appoint a Special Commissioner to hear Criminal cases and exercise the full jurisdiction conferred upon a Judge of the Supreme Court.

By 61 Vict., No. 27, provision is made for holding Circuit Courts for the hearing of criminal and civil cases at such places as shall from time to time be appointed by the Governor by Proclamation.

The Eastern Goldfields Circuit Court is the only Court that has so far been proclaimed. It sits on the 3rd Wednesday in March, June, and September, and on the 4th Monday in November within a Circuit District.

Appeals against convictions or orders of Justices of the Peace, and all other appeals directed to be heard before Justices of the Peace in session and made within a Circuit Court District, can only be heard before such Circuit Court.

The Admiralty Jurisdiction of the Court is conferred by the Imperial Statutes 53 and 54 Vict., c. 27—"The Colonial Courts of Admiralty Act, 1890."

The Sheriff has jurisdiction over all the State, and is permanently appointed by the Governor.

Police Courts are held in all the districts. In Perth the Court is presided over by a Police Magistrate, and in other districts by Government Residents or Resident Magistrates. They sit daily, and deal with all minor offences against persons and property. Small Debts Courts are held monthly (except in Perth, Fremantle, and Southern Cross, where the sittings are held at shorter intervals), to hear and determine claims where the amount does not exceed £100. In each case the Police Magistrate, Government Resident, or Resident Magistrate is the Judge of the Court.

The Prison at Fremantle, which has been taken over from the Home Government, was formerly the Imperial Convict Establishment. There are, besides, ten common gaols situated in the

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country districts, where prisoners are kept awaiting trial or undergoing short sentences; and there is a penal outstation at Rottnest, which was formerly exclusively a native prison.

Commissioners of the Supreme Court of Western Australia.

Commissioners for taking affidavits, etc., are appointed by the Chief Justice for the time being, under 35 Vict., No. 3. Applications by persons residing outside the State should be accompanied by post office order for £1 5s. (the fees payable thereon), and supported by a certificate of fitness of applicant, signed by some one holding a judicial position.

Under "The Administration Act, 1903" (3 Edw. VII., No. 13), all district agents may, for the purposes of Part II. of said Act, exercise any powers which can be exercised by Commissioners of the Supreme Court.

	£	s.	d.
Fees payable on appointment	1	5	0
Fees payable to a Commissioner.			
On taking each affidavit	0	1	6
On marking each exhibit	0	1	0
On taking acknowledgments of a married woman	0	2	6

Public Notaries.

Every person applying to be appointed a Public Notary must, after obtaining a certificate from the Chief Justice as to fitness and the necessity for such appointment, advertise his intention to apply to the Full Court on a day not earlier than four weeks from the first advertisement, to be so appointed. A fee of £5 is payable on appointment.

Supreme Court of Western Australia.

BARRISTERS' ADMISSION BOARD.

This Board was formed under the Legal Practitioners Act of 1893, and from time to time makes and prescribes all such rules as to the Board may seem meet:—

(*a.*) For fixing the time and regulating the annual election of the five practitioners on the Board.

(*b.*) For the examination from time to time of articled clerks and their conduct whilst under articles of clerkship.

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(*c.*) For the admission, qualification, and examination of all candidates for admission as practitioners.

(*d.*) For regulating the investigation of charges of alleged misconduct of practitioners in connection with the practice of their profession, and for imposing conditions to be observed by applicants for re-admission and regulating such applications.

(*e.*) For regulating the meetings and proceedings of the Board.

(*f.*) For generally carrying into effect the objects of the Legal Practitioners Act.

Law students are required to pass a preliminary examination in the following subjects:—Arithmetic and Algebra (to and inclusive of quadratic equations), English Grammar, Analysis and Composition, Euclid (first two books), Outlines of English History from the Conquest to the present time, and Latin. In Latin applicants are examined in *Cicero (De Amicitia)* or *Virgil (Æneid, Book IV.)*, or such other works as the Board may from time to time direct.

The Board may dispense with the preliminary examination in favour of any candidate who has matriculated or graduated at, or passed in Western Australia the matriculation examination of, any University recognised by the Board in Great Britain or any of the Australian States.

Every student must serve under articles for five years, unless such person has taken the degree of Bachelor of Law at any University recognised by the Board in England or Ireland, or any of the Australian States, including Tasmania and New Zealand, in which case he need only serve for the full term of three years.

Every articled clerk must pass an intermediate examination in Stephens's "Commentaries" and Williams' "Real and Personal Property" (modified by local laws), and also a final examination in law in the following subjects:—Contracts and Torts, Real and Personal Property, Evidence, Criminal Law, Equity, Statute Law of Western Australia, Practice and Procedure in the Supreme Court of Western Australia, and any one of the following subjects:—Jurisprudence, Constitutional History, Roman Law, or International Law.

Every applicant for admission as a practitioner, unless a locally articled clerk, must, at least five calendar months before he applies to the Court for admission, lodge with the Secretary of the Board—

(*a.*) An affidavit with reference to the places where he has practised, as to the nature of his employment after the cessation of his former practice, and as to his conduct;

(*b.*) A certificate of his admission to practise in every Court in which he has been admitted to practise; and

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(*c.*) A certificate from the Registrar or other proper officer of every Court in which he has theretofore been admitted to practise, or from the Treasurer of his Inn, that at the date of such certificate, not being more than four months prior to the date of such lodgment, the name of the applicant was still on the rolls of the Court or Inn, and that he had never at any time been struck off or suspended, nor been the subject of any complaint by any person to the Court or Inn, or to any committee or body having authority to deal with complaints against any person as a member of the Inn, or entitled to practise before any such Court (as the case may be); and

(*d.*) A certificate of two persons of repute who have known the applicant in the place wherein he was last practising out of the State, certifying that the applicant is well known to them, and in their opinion is a fit and proper person to be admitted as a practitioner in the Supreme Court of Western Australia.

Every applicant for admission as a practitioner must—

(*a.*) Lodge with the Secretary within one calendar month before he applies to the Court for admission a certificate of two persons of repute who have known the applicant in this State, certifying that the applicant is well known to them, and in their opinion is in every respect a fit and proper person to be admitted as a practitioner in the Supreme Court of Western Australia; and

(*b.*) During one calendar month immediately preceding the date of his application advertise twice a week in two daily papers published in Perth, and in such other paper published elsewhere in the State as the Board may direct, notice of his intention to apply for admission;

New Zealand legal practitioners are not admitted to practise in the State unless they were admitted in their own colony prior to the passing of the New Zealand Act (1882), which dispenses with the necessity for the serving of articles by students.

Practitioners, and other applicants for admission, before admission to the Bar of the State, pay a fee of thirty guineas (in addition to the Supreme Court Stamp Fee of ten pounds and advertising charges of six guineas) to the Barristers' Board. Law students pay the following fees to the Board:—Before preliminary examination, twelve guineas; before intermediate examination, three guineas; before final examination, five guineas.

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CIVIL SITTINGS, SUPREME COURT.

The Civil Sittings of the Supreme Court are eleven in each year, and commence on Tuesday after the 25th February (except when that day falls on a Tuesday, and then on that day), on the second Tuesdays in the months of March to November, both inclusive, and on the first Tuesday in December. If the Civil Sittings fall on Tuesday before Easter, such sittings will not be held till Wednesday after Easter; and when any sittings would commence on a public holiday, they are held on the following day.

Action must be set down for trial within six days after giving notice of trial.

TIME FOR ENTERING APPEARANCE.

In Western Australia—

Not exceeding 200 miles from Perth ...	10 days.
Above 200 but less than 400 miles ...	16 „
„ 400 „ „ 600 „ ...	21 „
„ 600 miles	30 „

No. 11 of 1901 of the Commonwealth of Australia.

(Service and Execution of Process Act.)

When for service outside the Commonwealth—such time as the Court or Judge may direct.

If the writ is issued or is to be served in the State of Western Australia, or in the Northern Territory of the State of South Australia—45 days.

In any other case—30 days.

FULL COURT.

The Sittings of the Full Court are five in every year, and commence on the third Tuesday in the months of March, May, July, September, and November, and on such other days or times as the Full Court may think fit.

CRIMINAL SITTINGS.

(63 Vict., No. 7.)

Criminal Sittings are held on the first Tuesday in every month, excepting January and February.

CIRCUIT COURT.

(61 Vict., No. 28.)

The Eastern Goldfields Circuit Court sits four times a year, on the third Wednesday in the months of March, June, and September, and on the fourth Monday in the month of November.

March	16th	June	15th
September	21st	November	28th

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VACATIONS.

The Vacations observed in the Supreme Court are the Christmas Vacation, commencing on the 24th December and terminating on 25th February, and the Easter Vacation, commencing on Good Friday and terminating on Easter Tuesday.

No pleadings can be amended or delivered in the Christmas Vacation unless directed by a Court or a Judge.

HOLIDAYS.—SUPREME COURT.

The several offices of the Supreme Court are open on every day of the year except Sundays, Good Friday, Easter Eve, Easter Monday and Tuesday, Whit Monday, Christmas Day and the next following working day, and on all days appointed by proclamation to be observed as days of general fast, humiliation, or thanksgiving, and every public holiday.

COURTS OF QUARTER SESSIONS.

(9 Vict., No. 4, 12 Vict., No. 2, 50 Vict., No. 27.)

Albany—Sits 3rd Wednesday in February, May, August, November.

Broome—Sits 1st Wednesday in February, May, August, November.

Bunbury—Sits 3rd Wednesday in January, April, July, October.

Coolgardie—Sits 2nd Wednesday in March, June, September, December.

Cue—Sits 3rd Wednesday in February, May, August, November.

Derby—Sits 4th Wednesday in January, April, July, October.

Esperance—Sits last Wednesday in February, May, August, November.

Geraldton—Sits 1st Wednesday in March, June, September, December.

Kalgoorlie—Sits 3rd Wednesday in March, June, September, December.

Roebourne—Sits 2nd Wednesday in March, June, September, December.

Wyndham—Sits 4th Wednesday in February, May, August, November.

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Local Courts.

(27 Vict., No. 21; 51 Vict., No. 10; 58 Vict., No. 13.)

Place.	Date of Sitting.	Place.	Date of Sitting.
Albany ...	2nd Wed. in month	Lawlers ...	1st Thurs. in month
Beverley ...	Last Thurs. in month	Leonora ...	2nd Thurs. in month
Boulder ...	1st and 3rd Fri. in month	Marble Bar ...	1st Wed. in month
Bridgetown ...	1st Fri., Mar., June, Sept., Dec.	Menzies ...	3rd Wed. in month
Broad Arrow	1st Wed. in month	Moora ...	3rd Tues., Feb., May, Aug., Nov.
Broome ...	1st Tues. in month	Mt. Magnet...	2nd Tues. in month
Bulong ...	3rd Thurs. in month	Mt. Malcolm..	1st Wed. in month
Bunbury ...	2nd Tues. in month	Mt. Morgans..	3rd Mon. in month
Busselton ...	2nd Thurs. in month	Nannine ...	4th Sat. in month
Carnarvon ...	2nd Thurs. in month	Narrogin ...	2nd Fri. in month
Collie ...	3rd Wed. in month	Newcastle ...	2nd Tues. in month
Coolgardie ...	2nd Wed. in month	Norseman ...	2nd Wed. in month
Cossack ...	3rd Tues. in month	Northam ...	1st Thurs. in month
Cue	1st Wed. in month	Northampton	3rd Fri. in month
Derby ...	4th Fri. in month	Nullagine ...	2nd Mon., Jan., March, May, July, Sept., Nov.
Esperance ...	4th Mon. in month		
Fremantle ...	2nd and last Mon. in month	Onslow ...	1st Wed. in month
		Peak Hill ...	1st Wed. in month
Geraldton ...	2nd Tues. in month	Perth ...	Every alternate Thurs.
Gingin ...	3rd Tues. in month	Phillips River	3rd Tues. in month
Greenbushes...	4th Fri. in month	Pinjarra ...	1st Tues. in month
Greenough ...	4th Wed. in month	Roebourne ...	2nd Wed. in month
Guildford ...	Last Tues. in month	Southern Cross	Last Fri. in month
Hall's Creek...	2nd Thurs. in month	Victoria Plains	3rd Wed., Jan., April, July, Oct.
Jarrahdale ...	2nd Tues. in month		
Kalgoorlie ...	1st and 3rd Mon. in month	Wagin ...	3rd Fri. in month
		Williams ...	1st Wed. in month
Kanowna ...	3rd Wed. in month	Wiluna ...	2nd Thurs. in month
Katanning ...	2nd Wed. in month	Wyndham ...	Do.
Kojonup ...	Last Wed. in month	Yalgoo ...	Do.
Kookynie ...	4th Tues. in month	York ...	Do.
Laverton ...	2nd Mon. in month		

Jurisdiction does not extend beyond £100.

LOCAL COURT VACATION.

(58 Vict., No. 13, Secs. 34-35.)

A vacation is observed in the Local Courts from the 20th December to 18th January, both days inclusive, during which period the Court does not sit.

In the event of any sitting of the Local Court falling upon a Bank Holiday, the Court sits on the day next following.

Licensing Meetings.

(44 Vict., No. 9; 1 & 2 Edw. VII., No. 2.)

Every application for a license under "The Wines, Beer, and Spirit Sale Act of 1880," must be made at the meetings of the Licensing Magistrates of the district wherein the premises are

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situate. Such meetings are held on the first Monday in the months of March, June, September, and December.

The licensing magistrates for the licensing district are the Resident Magistrate and the Justices of the Peace resident in such district, except in Perth, Fremantle, Guildford, Kalgoorlie, Coolgardie, and Dundas, where two Justices are specially appointed to sit with the Resident or Police Magistrate. Under 52 Vict., No. 13, the warden of a proclaimed goldfield has all the powers and authority of a Bench of Licensing Magistrates in respect of the granting of licenses. Under proclamation the following goldfields are exempted from the operations of this Act:—Murchison, Dundas, North Coolgardie, North-East Coolgardie, East Coolgardie, and Broad Arrow.

The annual fees payable for Annual and Temporary Licenses are as follows:—

Publican's general license, £50 in Perth and Fremantle, £40 elsewhere.

	£
Packet license	10
Wine and beer license	5
Spirit merchant's license	5
Gallon license	10
Two gallon license	10
Colonial wine license	2
Billiard-table license	10
Temporary license	1
Eating, boarding, or lodging-house license	1
Wayside house license	10

If the term of any such license commences on or after the 1st April in any year, only three-fourths of the above fees are payable; on or after the 1st July, one-half; on or after the 1st October, one-fourth.

Persons authorised to take Oaths and Affirmations.

(Under 2 Edw. VII., No. 11, Section 12.)

Under "60 Vict., No. 30," and amended by "63 Vict., No. 37," every Warden of a Goldfield or Goldfield District, is, by virtue of such appointment, and during the tenure of office, a Justice of the Peace for the State.

Under the same Act any oath administered or affirmation or statutory declaration made before the Registrar of the Department of Mines, or Mining Registrar of a Mineral District, or Clerk of Petty Sessions, or Clerk of a Local Court, or Mining Registrar of a Goldfield or Goldfield District has the same force and effect as if administered or taken before a Justice of the Peace.

Under the provisions of "55 Vict., No. 32," the Official Receiver may, for the purpose of verifying proofs, etc., administer oaths.

Under the same Act trustees may, for the purpose of their duties in relation to proofs of debt, administer oaths and take affidavits.

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Under "2 Edw. VII., No. 11, Section 9," the Mayor for the time being of every Municipality is a Justice of the Peace for the Magisterial District in which the Municipality is situated.

Every member of the Executive Council, every Judge of the Supreme Court, every Chairman of a Court of General or Quarter of the Peace Sessions, and every Police or Resident Magistrate or Coroner is, by virtue of his office, a Justice of the Peace for the whole of the State.

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7.—MILITARY AND NAVAL DEFENCES.

By the provisions of the Commonwealth Constitution, the Military and Naval Defences were brought under the control of the Federal Government in 1901.

The Force, under the scheme of organisation, is divided into—

(1.) A Field Force, liable for service in any part of the Commonwealth.

(2.) A Garrison Force, for the Local Defence.

The Forces of each State are under the command of a State Commandant, but the supreme command is exercised by a General Officer Commanding, the Federal Head Quarters being in Melbourne.

The Military Forces of the State consist of a Field Force, viz., Light Horse and Field Artillery (Militia), and Infantry (Volunteers); Garrison Force, viz., Garrison Artillery (Permanent and Militia) and Infantry (Volunteers).

The Rifle Clubs form a reserve.

The Permanent Artillery Force in Western Australia was enrolled in March, 1893; the first Volunteer Force in 1861, under Local Ordinance 25 Vict., No. 3; whilst the Militia was enrolled only on the 1st July, 1903.

The headquarters of the Western Australian Defence Force are in Perth. The Commandant is assisted by a Chief Staff Officer and a small staff.

There are fortifications at King George Sound. The Militia corps of Garrison Artillery at Albany was, on the 30th June, 1903, 62 strong, all ranks.

All the principal towns of the State now possess Militia Volunteer Corps, whilst in the larger ones there are also Cadet Corps.

Rifle Clubs are organised to encourage and train the people in the effective use of the rifle for the defence of their country in time of emergency. They are required to be authorised by the Governor General, and form part of the military system of the Commonwealth. The following free issues of ammunition are granted:—

	For efficiency.	For musketry.
For each active member	150 rounds ...	50 rounds.

Each efficient active member of a Rifle Club is entitled to purchase 200 rounds, and each non-efficient active member 100 rounds of ammunition per annum, at the reduced rate fixed by the Defence Department.

As regards the Militia, or Partially-paid Forces, in addition to the provisions for pay under the "Regulations for Efficiency and Pay," forage or horse allowance is issued to members of these Corps in consideration of their providing horses suitable for the service.

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Designation.	Establishment as authorised by Order in Council.						Authorised Strength as per Estimates for Current Year.						Actual Strength on 31st December, 1903.					Wanting to Complete to Authorised Strength as per Estimates.				
	No. of Squadrons, Batteries, or Companies.	Personnel.				Horses.	No. of Squadrons, Batteries, or Companies.	Personnel.				Horses.	Personnel.				Horses.	Personnel.				Horses.
		Officers.	Warrant Officers.	Other Ranks.	Total.			Officers.	Warrant Officers.	Other Ranks.	Total.		Officers.	Warrant Officers.	Other Ranks.	Total.		Officers.	Warrant Officers.	Other Ranks.	Total.	
PERMANENT—																						
District Headquarters Staff ...	...	2	...	...	2	2	...	2	...	...	2	2	2	...	...	2	2	...	...	..	...	...
Do. do. (Civilians)	...	...	...	3	3	...	...	...	...	3	3	...	...	...	3	3	...	...	...	...	...	...
Royal Australian Artillery ...	¼	2	...	34	36	...	¼	2	...	34	36	...	2	...	33	35	1	...	...	1	1	...
Corps of Australian Engineers ...	...	...	...	1	1	...	...	...	...	1	1	...	...	...	1	1	...	...	...	...	...	...
Ordnance Department (Civilians)	...	...	...	...	...	...	...	...	...	2	2	...	...	...	1	1	...	...	...	1	1	...
Rifle Range Staff	...	...	...	...	...	...	...	...	...	1	1	...	...	...	1	1	...	...	...	...	...	...
Pay Department (Civilians) ...	...	...	...	2	2	...	...	...	...	2	2	...	...	...	2	2	...	...	...	...	...	...
Instructional Staff	...	1	9	5	15	1	...	1	9	5	15	1	1	9	4	14	1	...	...	1	1	...
Total Permanent Forces, including Civilians ...	¼	5	9	45	59	3	¼	5	9	48	62	3	5	9	45	59	4	...	...	3	3	...
MILITIA—																						
18th Australian Light Horse Regiment (Western Australian Mounted Infantry):																						
Staff	.	3	1	2	6	6	..	3	1	2	6	6	2	...	...	2	2	1	1	2	4	4
Squadrons	4	20	...	268	288	288	4	20	...	268	288	288	15	...	231	246	246	5	...	37	42	42
Australian Field Artillery:																						
Staff	...	...	...	...	...	...	...	...	...	...	...	.	1	...	...	1	...	...	...	...	...	...
No. 1 W.A. Battery...	1	4	...	72	76	...	1	4	...	72	76	...	5	...	63	68	...	...	...	9	9	...
No. 2 W.A. Battery...	1	4	...	72	76	...	1	4	...	72	76	...	4	...	31	35	...	...	...	41	41	...
Australian Garrison Artillery:																						
Staff	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.	...	...	...	...	...	...	...
No. 1 W.A. Company	1	4	...	75	79	...	1	4	...	75	79	...	1	...	38	39	...	3	...	37	40	...
Total Militia	7	35	1	489	525	294	7	35	1	489	525	294	28	..	363	391	248	9	1	126	136	46

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Volunteers—																						
11th Australian Infantry Regiment (Perth Regiment):																						
Staff	...	4	1	3	8	...	...	4	1	3	8	...	4	...	2	6	...	...	1	1	2	...
*Band	...	...	...	21	21	...	...	...	1	30	31	...	...	1	28	29	...	...	...	2	2	...
Companies	6	18	...	342	360	...	6	18	...	342	360	...	13	...	199	212	...	5	...	143	148	...
West Australian Infantry Regiment:																						
Staff	...	4	1	3	8	...	...	4	1	3	8	...	...	...	...	...	...	4	1	3	8	...
Band	...	...	...	21	21	...	...	...	...	21	21	...	...	...	19	19	...	...	...	2	2	...
Companies	6	18	...	342	360	...	4	12	...	228	240	...	16	...	207	223	...	...	...	21	21	...
Goldfields' Infantry Regiment: W.A.:																						
Staff	...	4	1	3	8	...	...	4	1	3	8	...	2	...	1	3	...	2	1	2	5	...
Band	...	...	...	21	21	...	...	...	...	21	21	...	...	...	20	20	...	...	...	1	1	...
Companies	6	18	...	342	360	...	5	15	...	285	300	...	16	...	265	281	...	...	...	20	20	...
Army Service Corps:																						
Garrison details	...	...		...	...	...	...	...	...	9	9	...	...	...	...	...	...	...	...	9	9	...
Australian Army Medical Corps:																						
Staff	...	...	...	...	...	...	...	1	...	...	1	...	1	...	...	1	...	...	...	...	...	...
Officers attached to Units	...	...	...	...	...	...	...	7	...	...	7	...	14	...	...	14	...	...	...	...	...	...
W.A. Garrison Company	...	...	...	...	...	...	...	1	...	...	1	...	1	...	...	1	...	...	...	...	...	...
Veterinary Department	...	...	...	...	...	...	...	1	...	...	1	...	1	...	...	1	...	...	...	...	...	...
Total Volunteers	18	66	3	1,098	1,167	...	15	67	4	945	1,016	...	68	1	741	810	...	11	3	204	218	...
Grand Total Permanent, Militia, and Volunteers	25½	106	13	1,632	1,751	297	22½	107	14	1,482	1,603	297	101	10	1,149	1,260	252	20	4	333	357	46
Chaplains	...	...	...	...	...	...	...	...	...	...	...	...	18	...	...	18	...	...	...	...	...	...
Unattached List of Officers	...	...	...	...	...	...	...	...	...	...	...	...	25	...	...	25	...	...	...	...	...	...
Rifle Clubs	...	...	...	...	...	...	...	...	...	...	...	...	...	...	800	800	...	...	...	...	...	...

* Partially paid.

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An annual clothing allowance of 30s. is granted to all Corps, Militia and Volunteers, for all members included in the establishment, in addition to a contingent allowance of 10s. to militia and £1 to volunteers, for every man classed as efficient on the 30th June of each year.

The annual allowance of Small Arm Ammunition is as follows:—

Light Horse, Infantry (Militia and Volunteers), and Senior Cadets.

		Rounds.
Free—		
For Musketry	Trained Soldiers ...	85
	Recruits	91
For Field Firing	Trained Soldiers ...	65
	Recruits	—
For each Effective		50
Miniature for Musketry ...	Trained Soldiers ...	10
	Recruits	30
At reduced cost—		
For each Effective		100

Garrison Artillery, Engineers, Army Medical Corps and Army Service Corps (Permanent, Militia, and Volunteers).

		Rounds.
Free—		
For Musketry	Trained Soldiers ...	—
	Recruits	91
For each Effective		60
Miniature for Musketry ...	Recruits	30
Reduced cost—		
For each Effective		100

Field Artillery (Permanent, Militia, and Volunteers).

	Rounds.
Free—	
For each Effective	60
At reduced cost—	
For each Effective	100

Junior Cadets.

Free—		
Miniature for Musketry ...	Ball	45
	Blank	20

Blank Ammunition.

Blank Ammunition (Smokeless), in addition to that referred to in Notes to Tables III. and IV., and Table VI. of Musketry Regulations, 1903-4, is issued to corps for purposes of manœuvre, as may be deemed advisable by State Commandants.

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PART IV.—POPULATION AND VITAL STATISTICS.

1.—POPULATION.

Enumerations and Estimates.

The number of the population is used as a basis in nearly all statistical investigations concerning any country, and a knowledge of it is therefore indispensable to the proper consideration of many questions—political, social, and economical. It is thus of the utmost importance that it should be ascertained with the greatest attainable accuracy, and consequently, in all civilised communities, an exact enumeration of the population is made regularly—usually at intervals of ten years. A proposal to take a census of all civilised countries on 31st December, 1900, the last day in the nineteenth century, was under discussion at the meeting of the International Statistical Institute held at St. Petersburg in August, 1897, but from the replies that had been received from the various authorities it was found to be impracticable.

The system followed in England since 1801 has been to take a census on the night of the first Sunday in April, in the first year of each decade, a slight variation, however, being made in the case of the last census, which was taken for the night of Sunday, 31st March, 1901. This course has also been latterly adopted throughout the Australian States, and the colony of New Zealand; the last-mentioned taking an additional Census in the sixth year of each decade.

The Conference of Statisticians which met in Hobart in January, 1902, after long discussion and careful consideration, unanimously passed the following resolution:—

> "That owing to the difficulty of estimating the number of "the people at long intervals, it is desirable to take an "intermediate Census—five years after each general "Census—showing at least the names, sexes, and ages "of the people, and distinguishing Chinese and the "coloured races, so that it may be possible to separate "them from the general population, if thought desir-"able."

Up to the present, however, no further action has been taken in the matter, although the information to be obtained by the adoption

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of the suggestion would undoubtedly prove of very great value to the Commonwealth and State Executives, for financial, political, social, educational, and, if necessary, military purposes.

The disturbing influences of both external and internal migration, resulting from the present increased facilities both of sea and land travel, which cause a constant interchange of population between the various States of the Commonwealth, and also between the various districts of each State, such, for instance, as that brought about in this State by the rushes to new gold discoveries, the undertaking of great engineering or other public works, and the opening up of great natural industries like the timber and coal trades, etc., supply cogent reasons, which used not to exist in years gone by, for the immediate establishment of a quinquennial Census.

The importance of possessing an approximately accurate record of the population of the Commonwealth, its racial composition, and its distribution throughout the six Federal States, cannot be too strongly urged, when it is taken into consideration that very many of the provisions made for the welfare of the Commonwealth, for the administration of the departments under its control, and for the representation of the individual States in the Federal Legislature, either are at present or probably eventually will be arranged for, as far as possible, on a population basis, whilst for State purposes a knowledge of the constitution of the population and its distribution over the various portions of the country is absolutely indispensable to the Executive for the proper performance of all internal administration.

Undoubtedly the most accurate results would be obtained by reducing the interval between the Censuses as much as possible, but it is very generally agreed that a period of five years would be sufficiently short for all practical purposes.

The date on which each Census has been taken in Western Australia, and the population then returned, will be seen in the following table:—

Date of Census.	Length of intercensal period.		Population.			Increase during period.		
			Males.	Females.	Total.	Numerical.	Per cent.	Per cent. per annum.
	years	days						
October 10, 1848	..		2,818	1,804	4,622	..	..	.
September 30, 1854	5	355	7,778	3,965	11,743	7,121	154·07	16·90
December 31, 1859	5	92	9,522	5,315	14,837	3,094	26·35	4·55
March 31, 1870 ..	10	90	15,375	9,410	24,785	9,948	67·05	5·14
April 3, 1881 ..	11	3	17,062	12,646	29,708	4,923	19·86	1·66
April 5, 1891 ..	10	2	29,807	19,975	49,782	20,074	67·57	5·39
March 31, 1901 ..	9	360	112,875	71,249	184,124	134,342	269·86	13·99

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For intercensal years, recourse must be had to estimates, and various methods are adopted in making these. The method employed by the Registrar General in England is to assume that the *rate* of increase shown to have been in force during the previous Census period will operate during the current one, and from this, on the basis of the result of the last Census, to calculate the estimated population for each year. Another method which is in use, is that of assuming that the numerical increase during the current Census period will be equal to the numerical increase for the preceding one, and distributing that increase uniformly over the period. In other words, the former method assumes that the population is increasing in geometrical progression, and the latter that it is increasing in arithmetical progression. Neither of these methods is employed in Australia, where an endeavour is made to ascertain the exact population at any required date by means of statistics of births, deaths, immigration, and emigration. If these statistics were perfectly reliable, it is evident that the true population would be found by adding to the population shown at the last Census the number of births and arrivals that have occurred since, and deducting the number of deaths and departures. The registration of births and deaths is, in most cases, fairly complete, but the records of arrivals and departures by sea are hardly so satisfactory, although very great improvement has been made in them of late in this State, owing to the cordial assistance which has been rendered to the Statistical Department in this matter by the various shipping offices represented here. There are also, doubtless, inaccuracies due to unrecorded migrations by land, but since, in the case of Western Australia, practically all external migration is by sea, this latter cause of inaccuracy has little, if any, appreciable effect on the total population of the State.

In estimates prepared in the manner above indicated, from birth, death, and passenger records, it is usually found that, unless special adjustment has been made from time to time, the estimated population at the date of a Census exceeds the enumerated, and not unfrequently that the excess so shown is considerable. This excess is generally assumed to be due to unrecorded departures, which have arisen through failure on the part of certain emigrants to book their passages before going on board the vessels by which they departed.

In order to allow for this tendency to over-estimate the population, it has for some years been the practice in several of the States of Australia to make, during each intercensal period, an adjustment of the migration figures, which usually takes the form of adding to the number of departures recorded a percentage based on the experience of the preceding intercensal period.

At a conference of the Government Statisticians of Australia held in Melbourne in September, 1903, it was agreed that the principle of making an allowance for unrecorded departures by sea

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should be adopted throughout the Commonwealth. The experience of the several States for the previous intercensal period was investigated and an estimate was made of the percentage on recorded departures by sea which it would be advisable to allow for unrecorded departures. The percentages fixed upon for the various States were as follows:—

New South Wales	9
Victoria	9
Queensland	10
South Australia	7
Western Australia	5
Tasmania	12½

These percentages, it was agreed, should be applied to all emigration figures throughout the current intercensal period, commencing 1st April, 1901.

So far as the total population of Western Australia is concerned, although no adjustment for unrecorded departures had been made during the preceding decennium, the result disclosed by the Census of 31st March, 1901, agreed very closely with that obtained for the same date by the ordinary method of estimating, the number actually enumerated being 184,124, as compared with the estimate of 184,537, an over-estimate of less than ¼ per cent. As regards the distribution according to sex, however, the results were not so satisfactory, the male population being found to have been over-estimated by no less than 6,896, and the females to have been under-estimated by 6,483. This error in sex distribution had probably arisen through the absence of indications as to sex on certain of the passenger lists, and the consequent inability to distinguish between males and females.

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Growth of Population.

During the three years which have elapsed since the date of the Census, the population has increased by 47,736, the factors which have contributed to this increase being shown in the following statement :—

Particulars.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Population on 31st March, 1901 (exclusive of full-blooded Aboriginals)	No. 112,875	No. 71,249	No. 184,124						
BIRTHS AND DEATHS:									
Births registered during the three years	No. 9,812	No. 9,212	No. 19,024						
Deaths registered during the three years	5,451	2,868	8,320						
Increase by excess of Births over Deaths				4,361	6,344	10,725			
IMMIGRATION AND EMIGRATION:									
Arrivals by sea during the three years	65,762	36,673	102,435						
* Departures by sea during the three years...	43,971	21,454	65,425						
Increase by Excess of Arrivals over Departures				21,791	15,219	37,010			
Net increase of Population during the three years							26,152	21,563	47,735
ESTIMATED POPULATION ON 31ST MARCH, 1904 (exclusive of full-blooded Aboriginals)... ..							139,027	92,812	231,859

* Including allowance for unrecorded departures.

In the period of three years under review, the population of the State increased by about 26 per cent., the increase due to excess of arrivals over departures amounting to more than 20 per cent., while that due to excess of births over deaths represented an increase of nearly 6 per cent. The rate of increase has been greater amongst the female portion of the population than amongst the

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male, the former increasing by about 30 per cent., and the latter by about 23 per cent.

Particulars relative to the increase of population during the year 1903 are as follows:—

Particulars.	Males.	Females.	Total.
Estimated Population on 31st December, 1903 (exclusive of full-blooded Aboriginals) ...	No. 129,886	No. 83,941	No. 213,827
Births and Deaths:			
Births registered during the year 1903	No. 3,433	No. 3,266	No. 6,699
Deaths registered during the year 1903	1,829	959	2,788
Increase by excess of Births over Deaths	1,604	2,307	3,911
Immigration and Emigration:			
Arrivals by sea during the year 1903	19,294	11,649	30,943
* Departures by sea during the year 1903	14,323	6,904	21,227
Increase by excess of Arrivals over Departures	4,971	4,745	9,716
Net increase of Population during the year 1903	6,575	7,052	13,627
Estimated Total Population on 31st December, 1903 (exclusive of full-blooded Aboriginals)	135,961	90,993	226,954

* Including allowance for unrecorded departures.

During the year the male portion of the population increased by slightly more than 5 per cent., while the female portion exhibited for the same period an increase of nearly $8\frac{1}{2}$ per cent., the total population increasing by about $6\frac{1}{2}$ per cent.

In the earlier years of the settlement of this State the growth of the population was extremely slow, as will be seen from the fact

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that, whilst at the end of 1829, the year in which settlement was commenced, the number of inhabitants, inclusive of the military and their families, amounted to 1,003, the total had only reached 2,032 by 1837, and even in 1840 stood no higher than 2,311. In fact until the discovery of gold in the Kimberley district in 1885, the population increased so slowly that the total on the 31st December, 1884, or more than 55 years after the date of the first settlement, was only 32,958.

The discovery referred to, however, occasioned a rapid influx of population in 1885, 1886, and 1887, during which three years an increase of no less than 9,530 was recorded—a greater increase than had been experienced during the whole of the preceding 14 years. Owing largely to the fact that the Kimberley Goldfield did not come up to expectations, a temporary set-back occurred in 1888, for which year the records showed an actual decrease of population, amounting to 351. Subsequent rich mineral discoveries, the opening up of other great natural industries of the State, and the increase in general trade and public works consequent on these developments, led, however, to so large an influx of population that in the nine years, from 1889 to 1897 inclusive, the total increased by nearly 120,000, viz., from 42,137 to 161,694. It is an interesting coincidence that the years 1895, 1896, and 1897, which were those responsible for the largest increases during this period, occupy a corresponding position to the years in the previous decade which witnessed a considerable addition to the population, viz., 1885, 1886, and 1887.

For the three years, 1895 to 1897, the total increase was the phenomenally large one of 79,680.

In 1898 and 1899 a temporary lull occurred; indeed, in the latter year, although the births exceeded the deaths by 2,850, the increase in population amounted to only 2,841 owing to the fact that the departures exceeded the arrivals by nine.

In each of the succeeding years substantial additions have been made to the population, with the result, as previously pointed out, that in the three years which have elapsed since the date of the Census a total increase of nearly 48,000 has been experienced.

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The population of the State from 1829 onwards is given in the following table:—

Year.	Males.	Females.	Total.	Increase on preceding estimate.		Number of Females to 100 Males.
				Numerical.	Per cent.	
1829 ..	769	234	1,003	..	..	30·43
1840 ..	1,434	877	2,311	1,308	130·41	61·16
1850 ..	3,576	2,310	5,886	3,575	154·69	64·60
1860 ..	9,529	5,698	15,227	9,341	158·70	59·80
1870 ..	15,474	9,610	25,084	9,857	64·73	62·10
1880 ..	16,559	12,460	29,019	3,935	15·69	75·25
1881 ..	17,216	12,797	30,013	994	3·43	74·33
1882 ..	17,551	13,215	30,766	753	2·51	75·29
1883 ..	18,005	13,695	31,700	934	3·04	76·06
1884 ..	18,623	14,335	32,958	1,258	3·97	76·97
1885 ..	19,989	15,197	35,186	2,228	6·76	76·03
1886 ..	23,044	16,540	39,584	4,398	12·49	71·78
1887 ..	24,807	17,681	42,488	2,904	7·34	71·27
1888 ..	24,275	17,862	42,137	* 351	* 0·82	73·58
1889 ..	25,066	18,632	43,698	1,561	3·70	74·33
1890 ..	26,794	19,496	46,290	2,592	5·93	72·76
1891 ..	32,054	21,225	53,279	† 6,989	15·10	66·22
1892 ..	35,632	23,026	58,658	5,379	10·10	64·62
1893 ..	40,182	24,855	65,037	6,379	10·87	61·86
1894 ..	53,121	28,893	82,014	16,977	26·10	54·39
1895 ..	66,579	34,564	101,143	19,129	23·32	51·91
1896 ..	91,586	46,210	137,796	36,653	36·24	50·46
1897 ..	103,880	57,814	161,694	23,898	17·34	55·65
1898 ..	105,440	62,370	167,810	6,116	3·78	59·15
1899 ..	105,708	64,943	170,651	2,841	1·69	61·44
1900 ..	109,923	69,785	179,708	9,057	5·31	63·49
1901 ..	118,241	75,863	194,109	14,401	8·01	64·16
1902 ..	129,386	83,941	213,327	19,218	9·90	64·88
1903 ..	135,961	90,993	226,954	13,627	6·39	66·93

* Decrease. † 2,393 persons added on account of under-estimate revealed by Census.

Composition of Population.

It will be seen from the foregoing table that the number of females to each 100 males in the population, which had increased from 61 in 1840 to 77 in 1884, diminished with a slight fluctuation from the latter date till 31st December, 1896, when it stood as low as 50. From that date onward the number increased continuously, and at the end of 1903 had reached 67. The great disproportion between the sexes brought about during the period 1884 to 1896 was, of course, due to the rush to the goldfields, the immigrants being necessarily principally males. Now that these and other portions of the country have become more settled and habitable, the influx of women to join their husbands, or to obtain employment, combined with the diminution in the number of male immigrants, has tended slightly towards the equalisation of the male and female population. One effect produced on the composition of the population by the large proportionate adult male immigration is that at the present time the population of Western Australia contains a much larger proportion of adult males than any other State of Australasia.

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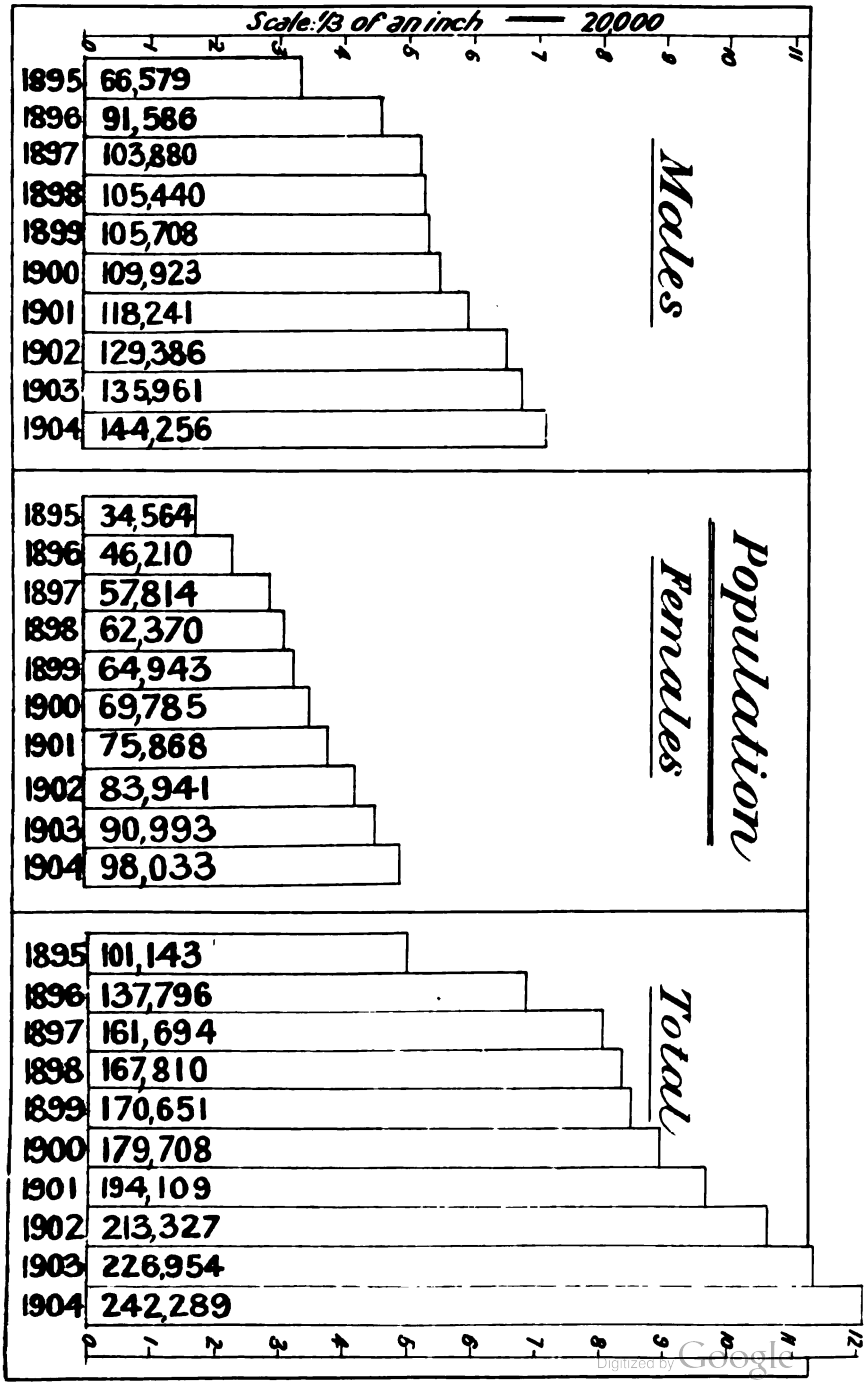

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This difference of distribution is strikingly brought out in the next table, which shows the proportion of males and females in each of the States of Australia and the colony of New Zealand at the date of the last Census (31st March, 1901), and also for each sex the proportion between the ages of 21 and 65 :—

State or Colony.	Census of 31st March, 1901.			
	Number of Females to each 100 Males.	Percentage of Males between 21 and 65 on total Males.	Percentage of Females between 21 and 65 on total Females.	Percentage of Persons between 21 and 65 on total Persons.
		%	%	%
Western Australia	63	66·13	51·41	60·42
New South Wales	91	49·64	46·56	48·18
Victoria	99	48·05	49·15	48·59
Queensland ...	80	52·91	44·43	49·12
South Australia ...	97	47·85	46·39	47·14
Tasmania	92	46·94	44·94	45·98
Total, Commonwealth	91	50·26	47·26	48·83
New Zealand ...	90	50·44	48·14	49·35
Total, Australasia	91	50·29	47·41	48·92

It will be seen that the proportion of males was much greater in the Western Australian population than was the case in any of the other States, there being but 63 females to each 100 males in Western Australia, as compared with 91 females to each 100 males for the whole of Australasia. Not only did the males predominate to this extent in Western Australia, but amongst them there was a very much larger proportion in the prime of life, 66 per cent. of the total male population of the State consisting of those between 21 and 65, while the corresponding percentage for the whole of Australasia was only 50.

These facts must be taken carefully into account in dealing with all questions relating to Revenue, Expenditure, Indebtedness, or Taxation per head, as it is evident that a community comprising a very large proportion of males in the prime of life is of greater economic value, that is, has greater powers of producing wealth in proportion to its numbers, than one in which there is a large proportion of women, children, and old men. Hence, for instance, a rate of indebtedness per head which would be excessive in the case of the latter community might be merely normal as regards the former.

Increase in Seasons.

It is of interest to note that the portion of the year in which the greatest additions have been made to the population of the State, mainly due to immigration, is the quarter ending 31st March. Thus, for the 10 years, 1894 to 1903, the average increase during the March quarter was 6,366, while during the June quarter it was 4,298,

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during the September quarter 4,191, and during the December quarter 1,337. The smallness of the December quarter's increase is principally due to the migration to the Eastern States in connection with the November racing carnival and the Christmas holidays, while the largeness of the increase in the March quarter is to some extent accounted for by the return of holiday-makers. It is also probable that many persons intending to migrate to Western Australia postpone their departure until after the Christmas holidays, thus tending to diminish the December quarter's increase and add to that of the March quarter.

Territorial Divisions.

Western Australia may be conveniently considered as comprising four great divisions:—

(1.) The Metropolitan,
(2.) The South-Western,
(3.) The Central and Eastern, and
(4.) The Northern and North-Western.

(1.) The Metropolitan division would include the Magisterial Districts of Perth and Fremantle;

(2.) The South-Western those of Blackwood, Collie, Katanning, Murray, Northam, Plantagenet, Sussex, Swan, Victoria, Wellington, Williams, and York;

(3.) The Central and Eastern those of Broad Arrow, Coolgardie, East Coolgardie, North Coolgardie, North-East Coolgardie, Dundas, Esperance, Mount Margaret, Murchison, East Murchison, Peak Hill, Phillips River, Yalgoo, and Yilgarn; and

(4.) The Northern and North-Western those of Ashburton, Broome, Gascoyne, East Kimberley, West Kimberley, Kimberley Goldfields, Pilbara, and Roebourne.

Each of these divisions has its distinctive features. Thus:—

(1.) The Metropolitan division embraces the capital city and its suburbs, as well as the principal port; thus representing the trade and commerce of the State.

(2.) The South-Western is the principal agricultural and timber-producing division; to which may be added coal-mining;

(3.) The Central and Eastern division is at present almost entirely devoted to gold-mining; while

(4.) In the Northern and North-Western division pearling, pastoral, and mining pursuits are those chiefly engaging attention.

It must, of course, be understood that many of these distinctions are only roughly applicable, and that the principal industry of each division is in most cases represented to some extent in the other divisions.

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The population enumerated in each of these divisions on 31st March, 1901, was as follows:—

Division.	Males.	Females.	Total.	Number of Females to 100 Males.
Metropolitan	37,122	30,309	67,431	81·65
South-Western	30,003	21,708	51,711	72·35
Central and Eastern	41,023	18,432	59,455	44·93
Northern and North-Western	4,727	800	5,527	16·92
Total	112,875	71,249	184,124	63·12

The foregoing classification of the population brings out very prominently the differences which exist in the distribution of the sexes in the various parts of the State. It will be seen that while there were in the Metropolitan division 82 females to each 100 males, there were 72 in the South-Western, 45 in the Central and Eastern, and only 17 in the Northern and North-Western. Out of the total of 112,875 males, 67,125 (or about 59 per cent.) were resident in the Metropolitan and South-Western divisions, while of the total female population of 71,249, these divisions contained no fewer than 52,017, or 73 per cent. of the total.

The annexed table furnishes particulars concerning the density of population of each division at the date of the Census:—

Division.	Area in square miles.	Population.		Density of population. Number of persons to each 100 square miles.
		Number.	Percentage on total population.	
Metropolitan	760	67,431	36·62	8,872·50
South-Western	98,830	51,711	28·09	52·32
Central and Eastern	465,062	59,455	32·29	12·78
Northern and North-Western	411,268	5,527	3·00	1·34
Total	975,920	184,124	100·00	18·87

If it be assumed that the relative distribution of the population amongst the four divisions has continued the same as at the date of the Census, the estimated population of these divisions on 31st December, 1903, would be:—Metropolitan, 83,423; South-Western, 63,863; Central and Eastern, 72,953; and Northern and North-Western, 6,715. It appears, probable, however, that the populations of the Metropolitan and South-Western divisions are somewhat higher than here shown, and that of the Central and Eastern somewhat lower, since, as far as can be ascertained, a considerable proportion of the recent arrivals have settled in the Metropolitan and South-Western divisions, while many former residents of the Central and Eastern divisions have also migrated to and settled in those portions of the State.

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Municipal Population.

In March and April of 1903, a rough census of the greater portion of the State was taken by the police in connection with the collection of particulars for the compilation of the Commonwealth Electoral Rolls. Arrangements were made for distinguishing the population within municipal boundaries, and it is believed that the information obtained is fairly accurate.

Of the 44 municipalities in existence at the date of that Census 15 contained populations of upwards of 2,000 persons. Arranged numerically, these are:—

Perth	31,671	Albany	3,435
Fremantle	16,367	East Fremantle ...	3,063
Kalgoorlie	6,780	Claremont	2,727
Boulder	5,658	Bunbury	2,677
Subiaco	4,702	Geraldton	2,504
Coolgardie	3,830	Northam	2,426
Leederville	3,709	Midland Junction ...	2,208
North Fremantle ...	3,578		

The figures given above are, in each instance, the number within the municipal boundaries. As, however, there is, connected with the growth of every town, a tendency for the population to overflow the somewhat arbitrary limits selected as the boundaries of the municipality, and to form small sub-centres beyond the more heavily rated area, the increase of the population within the municipal boundaries cannot, in the case of the larger towns, be considered as furnishing an altogether correct idea of the progress attained. Thus, as far as the metropolis is concerned, the following table, which, in addition to the population of the municipality of Perth, gives also those of the contiguous suburban municipalities, road board districts, etc., all of which have been peopled within recent years, may be taken as giving a more accurate idea of the true population of the capital:—

District.	Population in March and April, 1903.			
	Males.	Females.	Total.	Females to 100 Males.
Perth Municipality	16,823	14,848	31,671	88·26
Subiaco Municipality	2,368	2,334	4,702	98·56
Leederville Municipality	1,872	1,837	3,709	98·13
Victoria Park Municipality	723	677	1,400	93·64
South Perth Municipality	479	468	947	97·70
North Perth Municipality	797	737	1,534	92·47
Locality East of North Perth Municipality, including Maylands and Peninsula	233	177	410	75·97
Total, Perth and Suburbs ...	23,295	21,078	44,373	90·48

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Similar information relating to Fremantle is as follows:—

District.	Population in March and April, 1903.			
	Males.	Females.	Total.	Females to 100 Males
Fremantle Municipality	9,155	7,212	16,367	78·78
East Fremantle Municipality ...	1,569	1,494	3,063	95·22
North Fremantle Municipality ...	1,879	1,699	3,578	90·42
Total, Fremantle and Suburbs	12,603	10,405	23,008	82·56

Grouping together the Municipalities of Kalgoorlie and Boulder and the surrounding suburban areas, the following table furnishes corresponding particulars concerning the principal goldfields centre of the State:—

District.	Population in March and April, 1903.			
	Males.	Females.	Total.	Females to 100 Males.
Kalgoorlie Municipality	3,904	2,876	6,780	73·67
Boulder Municipality	3,090	2,568	5,658	83·11
Surrounding Suburban Areas	9,127	6,128	15,255	67·14
Total, Kalgoorlie, Boulder, and Suburbs	16,121	11,572	27,693	71·78

Mean Population.

Since the population varies during the course of the year, it is necessary, in making use of the figures for the purpose of exhibiting results *per capita*, to obtain the average or mean population for each year. Until recently the methods adopted for this purpose were not uniform in the different States of Australia, and as a consequence the results obtained were not strictly comparable.

At the 1903 (Melbourne) Conference of Australian Governm nt Statisticians, however, an arrangement was made for computing he mean populations of the several States of the Commonwealth on a uniform basis.

The method adopted in accordance with this arrangement is as follows:—The mean for each quarter is obtained by adding the population at the beginning to that at the end of the quarter, and dividing by two; the four quarterly means are then added together, and divided by four to get the mean for the year.

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The following table gives the mean population of Western Australia for each of the ten years, 1894 to 1903:—

Year.	Mean Population.			
	Males.	Females.	Total.	No. of Females to 100 Males.
1894 ...	48,261	26,794	75,055	55·52
1895 ...	58,791	31,357	90,148	53·34
1896 ...	82,267	40,429	122,696	49·14
1897 ...	102,403	53,160	155,563	51·91
1898 ...	107,810	61,189	168,999	56·76
1899 ...	105,160	63,368	168,528	60·26
1900 ...	109,008	67,897	176,905	62·29
1901 ...	115,177	73,136	188,313	63·50
1902 ...	125,557	80,198	205,755	63·87
1903 ...	133,500	87,778	221,278	65·75

It may be of interest to note that the mean population is something more than a mere arithmetical average, since it represents the number of years of male and female life spent in the State during the years under review. Thus in the year 1903, the aggregate number of years of male life spent in Western Australia was 133,500, whilst the female was 87,778, partly contributed by those who passed the whole of the year in the State, and partly by those who, owing to birth, arrival, death, or departure during the course of a year, had spent in Western Australia only a portion of the year, and whose individual contributions to the aggregate were consequently fractional.

Population of Australasia.

The estimated population of each of the six States of the Commonwealth of Australia, and the Colony of New Zealand, on the 31st of December, 1903, and the percentage of the population of each on the total population of the Commonwealth and Australasia, respectively, were as follows:—

State or Colony.	Population on 31st December, 1903.			Percentage on total Population—	
	Males.	Females.	Total.	Of Commonwealth.	Of Australasia.
Western Australia ...	135,961	90,993	226,954	5·77	4·76
New South Wales ...	754,632	676,997	1,431,629	36·42	30·05
Victoria	605,361	603,493	1,208,854	30·75	25·38
Queensland	285,297	230,233	515,530	13·11	10·82
South Australia ...	187,153	181,670	368,823	9·38	7·74
Tasmania	93,078	86,409	179,487	4·57	3·77
Total, Commonwealth	2,061,482	1,869,795	3,931,277	100·00	82·52
New Zealand	439,674	392,831	832,505	...	17·48
Total, Australasia ...	2,501,156	2,262,626	4,763,782	...	100·00

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The following table gives the population of Australasia at the end of each of the years 1893 to 1903 :—

Year.	Total Population of			
	Western Australia.	Commonwealth of Australia.	New Zealand.	Australasia.
1893	65,087	3,383,447	672,265	4,055,712
1894	82,014	3,450,368	686,128	4,136,496
1895	101,143	3,517,239	698,706	4,215,945
1896	137,796	3,581,291	714,162	4,295,453
1897	161,694	3,648,264	729,056	4,377,320
1898	167,810	3,696,956	743,463	4,440,419
1899	170,651	3,749,042	756,505	4,505,547
1900	179,708	3,774,481	768,278	4,542,759
1901	194,109	3,830,021	787,657	4,617,678
1902	213,327	3,886,823	807,929	4,694,752
1903	226,954	3,931,277	832,505	4,763,782

It will be seen that during the 10 years ended 31st December, 1903, the population of Australasia increased by 708,070, made up of an increase of 547,830 in the population of the Commonwealth and 160,240 in that of New Zealand, while, during the same period, the population of Western Australia increased by 161,917.

The manner in which these increases were made up is as follows :—

Particulars.	Increase of Population during the ten years 1894-1903.			
	Western Australia.	Commonwealth of Australia.	New Zealand.	Australasia.
Excess of births over deaths ...	22,786	557,232	121,265	678,497
Excess of arrivals over departures	139,131	* 9,402	38,975	29,573
Total increase	161,917	547,830	160,240	708,070

* Excess of departures over arrivals.

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The following is an estimate of the population of each of the Australasian capitals on 31st December, 1903:—

Capital (including suburbs).		Population.				
				Total.		
Name.	Area in square miles.	Males.	Females.	Number.	Persons per square mile.	Percentage on total for State.
Perth	25	24,000	22,400	46,400	1,856	20·44
Sydney	143	251,733	259,297	511,030	3,574	35·70
Melbourne ...	255	237,754	263,706	501,460	1,967	41·48
Brisbane ...	305	61,629	62,834	124,463	408	24·14
Adelaide ...	262	80,261	87,805	168,066	641	45·57
Hobart	99	16,532	18,385	34,917	353	19·45
Wellington ...	21	*	*	53,573	2,551	6·44

* Particulars not available.

The estimated population within a radius of 10 miles from the Perth Town Hall on 31st March, 1901, was 66,832, of whom 36,615 were males, and 30,217 females. The area, exclusive of ocean and river, comprised within this circle, is approximately 264 square miles.

On the assumption tnat the population within this area has increased since the date of the Census at the same rate as that of the State as a whole, the number of people residing within a radius of 10 miles of the Perth Town Hall on 31st December, 1903, may be set down at about 82,400, representing about 36 per cent. of the total population of the State, and averaging 312 persons to the square mile.

2.—IMMIGRATION AND EMIGRATION.

Decennial Migration.

The phenomenal increase in the population of Western Australia during the past decade has, of course, been very largely due to the excess of the number of Immigrants to these shores over that of Emigrants therefrom. From the annexed table, however, showing Immigration and Emigration particulars for the 10 years 1894 to 1903, it will be seen that this excess did not exhibit any approach to uniformity during the period, but that, on the contrary, considerable fluctuations were experienced. The greatest addition to population from this source took place in 1896, when, owing to the number of arrivals reaching the large total of

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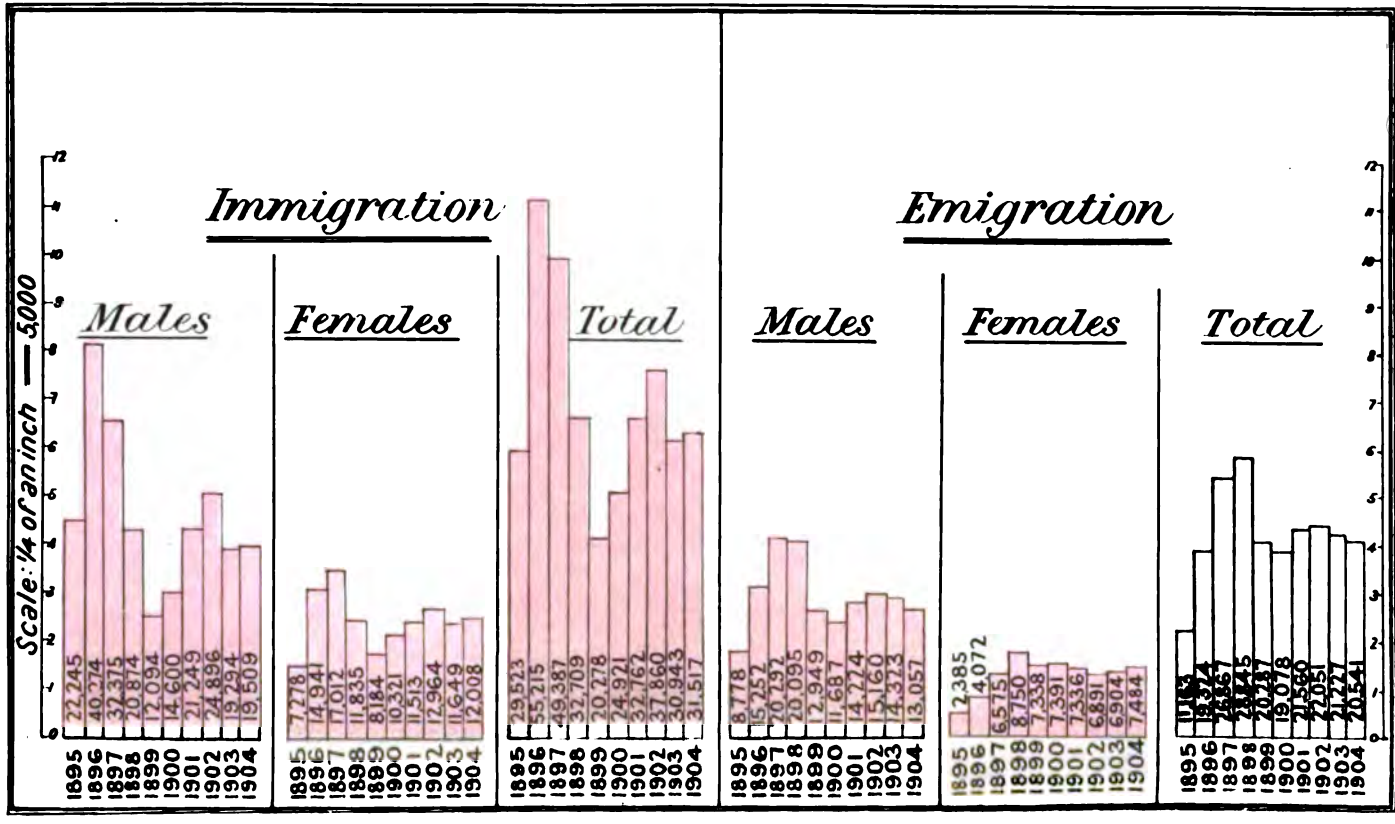
Immigration
Emigration
Scale: 1/4 of an inch — 5,000
Males
Females
Total
Males
Females
Total
1895 22,245
1896 40,274
1897 32,375
1898 20,874
1899 12,094
1900 14,600
1901 21,249
1902 24,896
1903 19,294
1904 19,509
1895 7,278
1896 14,941
1897 17,012
1898 11,835
1899 8,184
1900 10,321
1901 11,513
1902 12,964
1903 11,649
1904 12,008
1895 29,523
1896 55,215
1897 49,387
1898 32,709
1899 20,278
1900 24,921
1901 32,762
1902 37,860
1903 30,943
1904 31,517
1895 8,778
1896 15,757
1897 20,792
1898 20,095
1899 12,949
1900 11,687
1901 14,774
1902 15,160
1903 14,323
1904 13,057
1895 2,385
1896 4,072
1897 6,575
1898 8,750
1899 7,338
1900 7,391
1901 7,336
1902 6,891
1903 6,904
1904 7,484
1895 11,163
1896 19,374
1897 23,367
1898 28,845
1899 20,287
1900 19,078
1901 21,560
1902 22,051
1903 21,727
1904 20,541

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55,215 as against 19,324 departures, the net gain by immigration amounted to no less than 35,891. Low water mark was reached three years later, in 1899, when the number of departures actually exceeded the number of arrivals by 9. The returns for 1900, however, showed a considerable improvement, a net gain of 5,843 being recorded, while for 1901 a further advance to 11,202 was made, followed by 15,809 for 1902.

In 1903 the tide of Immigration slackened somewhat, but even then the excess of Immigration over Emigration attained a total of 9,716.

Year.	Immigration.			Emigration (including allowance for unrecorded departures).			Excess of Immigration over Emigration.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
1894	20,892	4,966	25,858	8,307	1,616	9,923	12,585	3,350	15,935
1895	22,245	7,278	29,523	8,778	2,385	11,163	13,467	4,893	18,360
1896	40,274	14,941	55,215	15,252	4,072	19,324	25,022	10,869	35,891
1897	32,375	17,012	49,387	20,292	6,575	26,867	12,083	10,437	22,520
1898	20,874	11,835	32,709	20,095	8,750	28,845	779	3,085	3,864
1899	12,094	8,184	20,278	12,949	7,338	20,287	*855	846	*9
1900	14,600	10,321	24,921	11,687	7,391	19,078	2,913	2,930	5,843
1901	21,249	11,513	32,762	14,224	7,336	21,560	7,025	4,177	11,202
1902	24,896	12,964	37,860	15,160	6,891	22,051	9,736	6,073	15,809
1903	19,294	11,649	30,943	14,323	6,904	21,227	4,971	4,745	9,716
Total	228,793	110,663	339,456	141,067	59,258	200,325			
Net Excess of Immigration over Emigration during the Ten Years 1894 to 1903 ...							87,726	51,405	139,131

* Excess of Emigration over Immigration.

In the above table the allowance for unrecorded departures, from 1st April, 1901, to 31st December, 1903, referred to on page 282, has been made, the effect produced being to increase the total emigration figures by 2,841 (1,924 males and 917 females).

The particulars furnished on the passengers' lists of this State, from which the Immigration returns are compiled, are the name of the vessel, the ports of embarkation and destination, and the names, sexes, and nationalities of the passengers, persons of 12 years and upwards being distinguished from those under 12 years. The same form of list is used both for inward and outward records.

Persons simply passing through a port of this State *en route* to another State or country are not counted either as arrivals or departures.

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Adults and Children.

The immigration record during each month of 1903 is as follows, persons of 12 years and upwards being distinguished from those under 12 years:—

Month.	Recorded Immigration.						
	Adults (12 years and upwards).		Children under 12 Years.		Total.		
	Males.	Females.	Males.	Females.	Males.	Females.	Total.
1903.							
January ...	1,811	828	201	156	2,012	984	2,996
February ...	1,655	805	200	183	1,855	988	2,843
March ...	1,723	963	227	193	1,950	1,156	3,106
April ...	1,393	886	209	206	1,602	1,092	2,694
May ...	1,506	944	221	204	1,727	1,148	2,875
June ...	1,432	827	181	156	1,613	983	2,596
July ...	1,282	687	143	157	1,425	844	2,269
August ...	1,243	619	142	157	1,385	776	2,161
September	1,058	658	127	157	1,185	815	2,000
October ...	1,382	793	192	175	1,574	968	2,542
November	1,360	720	203	173	1,563	893	2,456
December...	1,234	824	169	178	1,403	1,002	2,405
Total ...	17,079	9,554	2,215	2,095	19,294	11,649	30,943

The following is the corresponding return of recorded emigration:—

Month.	Recorded Emigration.						
	Adults (12 years and upwards).		Children under 12 Years.		Total.		
	Males.	Females.	Males.	Females.	Males.	Females	Total.
1903.							
January ...	1,011	571	138	99	1,149	670	1,819
February ...	1,019	451	138	73	1,157	524	1,681
March ...	1,118	574	159	79	1,277	653	1,930
April ...	1,040	511	124	51	1,164	562	1,726
May ..	776	331	117	54	893	385	1,278
June ...	874	318	97	58	971	376	1,347
July ...	836	366	66	49	902	415	1,317
August ...	791	350	54	48	845	398	1,243
September	825	357	69	71	894	428	1,322
October ...	1,366	632	123	102	1,489	734	2,223
November	930	509	130	87	1,060	596	1,656
December...	1,681	734	159	100	1,840	834	2,674
Total ...	12,267	5,704	1,374	871	13,641	6,575	20,216

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As mentioned on page 282, in using the emigration figures for the purpose of computing the population an addition of 5 per cent. is made to allow for unrecorded departures. The total emigration during 1903, including this allowance, will thus be 21,227 persons (14,323 males and 6,904 females).

Nationalities.

The attached table shows the number of immigrants to and emigrants from Western Australia recorded during 1903, classified according to their nationality and sex:—

Nationality.	Recorded Immigration.			Recorded Emigration.			Excess of Immigration over Emigration.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
European.									
British	17,153	11,451	28,604	12,258	6,441	18,699	4,895	5,010	9,905
Italian	417	26	443	559	21	580	*142	5	*137
German	197	79	276	172	51	223	25	28	53
French	26	19	45	48	23	71	*22	*4	*26
Russian	20	15	35	5	..	5	15	15	30
Greek	52	6	58	28	2	30	24	4	28
Austrian	90	2	92	21	2	23	69	..	69
Spanish	16	1	17	..	..	..	16	1	17
Swedish	22	4	26	9	2	11	13	2	15
Norwegian	4	2	6	4	2	6	..	..	..
Hungarian	1	4	5	1	..	1	..	4	4
Turkish	..	..	..	5	..	5	*5	..	*5
Danish	4	1	5	1	..	1	3	1	4
Swiss	5	9	14	4	..	4	1	9	10
Belgian	1	..	1	..	..	..	1	..	1
Dutch	1	1	2	..	..	..	1	1	2
Bohemian	1	1	2	..	..	..	1	1	2
Portuguese	..	..	..	1	..	1	*1	..	*1
Asiatic.									
Malay	475	..	475	159	..	159	316	..	316
Chinese	258	..	258	164	2	166	94	*2	92
Manilamen	33	..	33	42	..	42	*9	..	*9
Japanese	464	20	484	86	24	110	378	*4	374
Afghan	7	..	7	37	..	37	*30	..	*30
Indian	17	2	19	17	2	19	..	..	..
Javanese	5	..	5	4	..	4	1	..	1
Arab	1	2	3	..	..	..	1	2	3
Siamese	1	..	1	1	..	1	..	..	..
Cingalese	2	..	2	1	..	1	1	..	1
Persian	1	..	1	..	..	..	1	..	1
Undefined	1	..	1	1	..	1	..	..	..
American.									
U.S.A.	1	..	1	1	..	1	..	..	..
Brazilian	..	..	..	1	..	1	*1	..	*1
Mexican	..	..	..	1	..	1	*1	..	*1
Undefined	11	4	15	7	2	9	4	2	6
Polynesian.									
Undefined	7	..	7	..	..	..	7	..	7
Indefinite.									
Jewish	..	..	..	3	1	4	*3	*1	*4
Total	19,294	11,649	30,943	13,641	6,575	20,216	5,653	5,074	10,727

* Excess of Emigration over Immigration.

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From the foregoing figures it will be noticed that about 93 per cent. of the net gain from migration for the year was composed of persons of British nationality. The nationalities ranking next in order are Japanese, Malay, Chinese, Austrian, and German. As regards the representatives of the first two countries, it must be borne in mind that the introduction of persons of these races is mainly in connection with the pearling industry of the North-West coast, and that few of those so employed ever visit the Southern portion of the State. On the other hand, it will be observed that the departures of Italians, French people, and Afghans exceeded, contrary to the prevalent idea, the arrivals for the year by 137; 26; and 30 respectively.

Countries of Embarkation and Destination.

Classified according to the countries from which arrived or to which bound, the details of Immigration and Emigration recorded for 1903 are as follows:—

Countries from which arrived or to which bound.	Recorded Immigration.			Recorded Emigration.			Excess of Immigration over Emigration.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Australasia.									
Victoria	8,163	5,918	14,081	4,767	2,866	7,633	3,396	3,052	6,448
South Australia	5,991	3,471	9,462	4,514	2,022	6,536	1,477	1,449	2,926
New South Wales ..	2,105	1,386	3,491	1,503	826	2,329	602	560	1,162
New Zealand	7	1	8	3	..	3	4	1	5
Queensland	42	..	42	..	..	..	42	..	42
Europe.									
Great Britain	679	495	1,174	848	452	1,300	*169	43	*126
Italy	503	59	562	496	42	538	7	17	24
Belgium	177	114	291	4	..	4	173	114	287
France	117	44	161	52	19	71	65	25	90
Germany	57	29	86	48	14	62	9	15	24
Asia.									
Straits Settlements ..	1,182	46	1,228	522	70	592	660	*24	636
Ceylon	75	26	101	85	18	103	*10	8	*2
India	7	1	8	..	..	..	7	1	8
Aden	7	1	8	6	..	6	1	1	2
Timor	11	..	11	41	..	41	*30	..	*30
Java	4	..	4	..	..	..	4	..	4
Africa.									
Egypt	44	25	69	24	3	27	20	22	42
South Africa	122	32	154	726	242	968	*604	*210	*814
Mauritius	..	1	1	..	..	..	..	1	1
Pacific Islands.									
New Caledonia ..	1	..	1	2	1	3	*1	*1	*2
Total	19,294	11,649	30,943	13,641	6,575	20,216	5,653	5,074	10,727

* Excess of Emigration over Immigration.

The principal sources, therefore, from which the immigrant population has been derived are, as shown by these figures, the States of Victoria, South Australia, and New South Wales, the

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total excess of immigration to Western Australia from these three States over emigration to them being recorded as 10,536 out of a total of 11,701 recorded for those countries, showing an excess of immigration over emigration. The only other countries which contributed at all largely to the net increase during the year are the Straits Settlements and Belgium.

For two countries, viz., South Africa and Great Britain, the departures largely exceeded the arrivals, the excess in the former case being 814 and in the latter 126.

It must be particularly noted that the countries here shown are those in which the ports of embarkation or destination are situated, and are not to be taken as representing the countries of origin or of the ultimate destination of the migrants.

Ports of Arrival and Departure.

The arrivals and departures recorded for each of the ports of the State during 1903 are as follows:—

Name of Port.	Recorded Immigration.			Recorded Emigration.			Excess of Immigration over Emigration.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Albany	813	469	1,282	1,180	527	1,707	*367	*58	*425
Broome	952	11	963	286	19	305	666	*8	658
Bunbury... ...	110	70	180	62	54	116	48	16	64
Busselton (Vasse)	14	15	29	15	12	27	*1	3	2
Carnarvon ...	...	...	...	2	...	2	*2	...	*2
Cossack	36	...	36	30	...	30	6	...	6
Derby	4	1	5	4	2	6	...	*1	*1
Esperance ...	1	2	3	10	6	16	*9	*4	*13
Eucla	4	...	4	6	...	6	*2	...	*2
Fremantle ...	17,162	11,004	28,166	11,915	5,898	17,813	5,247	5,106	10,353
Geraldton ...	63	58	121	73	52	125	*10	6	*4
Onslow	43	...	43	11	...	11	32	...	32
Port Hedland ...	6	2	8	15	1	16	*9	1	*8
Wyndham ...	86	17	103	32	4	36	54	13	67
Total ...	19,294	11,649	30,943	13,641	6,575	20,216	5,653	5,074	10,727

* Excess of Emigration over Immigration.

The immigration figures given for the ports mentioned in the above table are the numbers of persons who landed at each of such ports from places outside of Western Australia, while the emigration figures relate to those who embarked at each port for places beyond the State. As would naturally be expected, the highest records of arrivals and departures are those for the port of Fremantle, the immigration figures for this port being slightly more than 90 per cent. of the total for the State, while the corresponding percentage in the case of the emigration figures is somewhat more than 88.

Albany ranks next in importance, owing to some extent to the fact that it is the only port of call in this State for many of the boats

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travelling *via* the Cape of Good Hope, while the largeness of the Broome migration returns, which occupy third position, is mainly due to the importation of Asiatic labour employed temporarily in connection with the pearling industry.

Assisted Immigration.

During the ten years, 1894 to 1903, Free and Nominated Immigrants to the number of 1,410 were introduced into this State from places beyond Australia. The following table, which distinguishes between males and females and adults and children, gives the particulars for each of the ten years:—

Year.	Adults. (12 years and upwards.)			Children under 12 years of age.			Grand Total.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
1894 ..	11	169	180	6	13	19	17	182	199
1895 ..	23	110	133	5	6	11	28	116	144
1896 ..	9	117	126	3	7	10	12	124	136
1897 ..	25	129	154	15	11	26	40	140	180
1898 ..	29	63	92	..	5	5	29	68	97
1899 ..	17	24	41	4	4	8	21	28	49
1900 ..	25	70	95	12	17	29	37	87	124
1901 ..	26	41	67	30	28	58	56	69	125
1902 ..	47	65	112	28	20	48	75	85	160
1903 ..	56	79	135	32	29	61	88	108	196

A certain amount of assistance has also in recent years been granted under particular circumstances to immigrants from the Eastern States, but details relative to the numbers so assisted do not appear to be available.

Australasian Immigration and Emigration.

The excess of Immigration over Emigration for each of the Australian States and the Colony of New Zealand for the year 1903, and also for the ten years, 1894-1903, is as follows:—

State or Colony.	Excess of Immigration over Emigration.	
	1903.	Ten years, 1894-1903.
Western Australia	9,716	139,131
New South Wales	4,539	1,127
Victoria	*16,570	*121,685
Queensland	*1,598	486
South Australia	*1,841	*28,434
Tasmania	*942	*27
Total Commonwealth ..	*6,696	*9,402
New Zealand	11,275	38,975
Total Australasia	4,579	29,573

* Excess of Emigration over Immigration.

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3.—NATURALISATION.

The procedure in connection with the naturalisation of foreigners has, in this State, varied from time to time, there being three well-defined periods in which essentially different methods have been in operation.

During the first period, which extended down to the passing of "The Naturalisation Act of 1871" (35 Vict. No. 2), it was necessary for a special Ordinance to be passed by the legislature dealing with each separate case or group of cases, and specifying the names of the persons to be naturalised. Each Ordinance set forth that the person or persons specified therein were thereby "naturalised and enabled to purchase and hold lands, and to enjoy all the other privileges of a natural born British subject within the limits of the Colony of Western Australia, save and except only the holding or exercising of any place or office of trust in the Court of Law or connected with the Treasury therein."

In each instance a proviso was added to the effect that the Ordinance "shall not come into operation until it shall have received the Royal confirmation, nor until such confirmation shall have been notified by the Governor for the time being by Proclamation or other public notice."

During this period the number of persons so naturalised was 39, no fewer than 29 separate ordinances being passed in connection therewith.

The second of the periods referred to commenced on 4th August, 1871, the date on which "The Naturalisation Act, 1871" (35 Vict. No. 2), was assented to.

Under this Act it was provided that upon obtaining the certificate and taking the oath of allegiance prescribed "every alien now residing in, or who shall hereafter come to reside in, any part of the Colony, with intent to settle therein, shall be entitled to all political and other rights, powers and privileges, and be subject to all obligations, to which a natural-born subject is entitled or subject in the Colony."

Any alien desiring to become a naturalised British subject was required under the Act to present to the Governor a memorial stating his or her age, occupation, duration of residence in Western Australia, and the grounds on which the privilege of naturalisation was sought, and praying the Governor to grant the requisite certificate.

The Governor, after receiving such evidence as he might deem necessary for proving the truth of the statements contained in the memorial, was authorised to issue a certificate granting to the memorialist (upon his or her taking the prescribed oath of allegiance) all the rights and capacities of a British subject within the Colony.

All such certificates were required "to be enrolled for safe custody as of record in the Supreme Court," and a fee of one pound was payable in respect of the several proceedings authorised by the Act.

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In addition to naturalisation by the issue of a certificate, the Act provided that any woman not of British birth marrying a natural-born or naturalised British subject should be deemed to be herself naturalised and have all the rights and privileges of a natural-born subject, while a similar extension of rights and privileges was granted in the case of any person who had become resident in the Colony during infancy, and whose father (or mother, if a widow, no provision being made for divorced persons) had obtained a certificate of naturalisation in Western Australia.

This Act continued in operation until it was superseded by the Commonwealth Naturalisation Act, which came into force on 1st January, 1904, the total period covered by the Western Australian Act being thus somewhat more than 32 years; during which period certificates of naturalisation to the number of 641 were issued, the details respecting them being as follows:—

Birthplaces of persons to whom certificates were issued.	1871–93.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	Total
Asia Minor ..	..	..	..	1	..	..	..	..	..	..	..	1
Austria-Hungary	3	2	..	1	2	3	2	..	..	12	2	27
Belgium ..	..	1	..	1	..	1	..	..	..	..	..	3
Brazil ..	1	..	..	..	..	..	..	..	..	..	..	1
China ..	22	..	..	..	..	..	..	..	..	..	..	22
Denmark ..	3	1	..	1	3	1	2	4	4	4	3	26
Finland ..	..	..	..	1	..	2	1	1	3	..	1	9
France ..	3	..	..	..	1	4	..	..	2	2	..	12
Germany ..	20	3	2	9	24	9	11	39	14	36	21	188
Greece ..	..	..	..	..	..	2	..	1	4	3	4	14
Holland ..	2	1	..	..	..	1	..	..	..	1	1	6
Italy ..	3	..	..	2	2	5	5	6	5	11	9	48
New Caledonia	..	..	..	..	..	..	..	1	..	..	..	1
Norway ..	2	..	2	..	1	1	2	5	5	6	9	33
Palestine ..	..	..	..	1	..	..	..	..	..	..	..	1
Penang Island	1	..	..	..	..	..	..	..	..	..	..	1
Philippine Islands	1	..	..	..	..	..	..	..	..	..	..	1
Poland ..	..	..	..	..	..	..	1	5	..	..	3	9
Roumania ..	..	..	..	..	..	1	..	..	..	1	1	3
Russia ..	12	1	6	3	1	3	1	6	9	9	3	54
Spain ..	12	..	45	..	4	..	1	1	1	2	1	67
Sweden ..	8	2	..	2	4	9	8	13	9	16	10	81
Switzerland ..	3	..	..	..	..	..	..	2	1	4	..	10
Timor ..	1	..	..	..	..	..	..	..	..	..	..	1
Turkey ..	1	..	..	..	..	2	..	..	1	..	3	7
U.S.A. ..	3	..	..	..	2	1	..	1	..	4	4	15
Total ..	101	11	55	22	44	45	34	85	58	111	75	641

It will be seen from the above table that the natives of Germany, Sweden, Spain, Russia, and Italy were, in the order named, those who availed themselves most largely of the provisions of the Act.

The third period commenced when the Commonwealth Naturalisation Act came into force. Under the Constitution Act, power is given to the Commonwealth Parliament to make laws with

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respect to "Naturalisation and Aliens," and this power the Parliament availed itself of in 1903, when the Commonwealth Naturalisation Act was passed, receiving assent on 13th October in that year, and coming into force on 1st January, 1904. This Act necessarily superseded the State legislation, and since the date of its commencement all applications for naturalisation require to be submitted to the Commonwealth authorities for the certificate of the Governor General, no certificates or letters of naturalisation issued after that date under a State Act being of any effect.

Any person who before the passing of the Act had obtained a State certificate or State letters of naturalisation is deemed to be naturalised under the Federal Act, but is entitled only to such rights, powers, and privileges as were conferred by the legislation of the State in which he was naturalised. In the case of Western Australia, as has been previously pointed out, the State Act of 1871 placed the person to whom a certificate of naturalisation has been issued on precisely the same footing as a natural-born British subject, so that all such persons are entitled to a full measure of benefit under the Commonwealth Act, which provides that "a person to whom a certificate of "naturalisation is granted shall, in the Commonwealth, be entitled "to all political and other rights, powers, and privileges, and be "subject to all obligations to which a natural-born British subject "is entitled or subject in the Commonwealth."

The qualifications required on the part of an applicant for a certificate are that he must not be an aboriginal native of Asia, Africa, or the Islands of the Pacific excepting New Zealand, that he must intend to settle in the Commonwealth, and that he either has resided in Australia continuously for two years immediately preceding the application, or else has obtained in the United Kingdom a certificate or letters of naturalisation.

Each applicant, unless holding a certificate or letters obtained in the United Kingdom, is required to make statutory declaration stating his name, age, birthplace, occupation, residence, length of residence in Australia, and that he intends to settle in the Commonwealth. He is further required to produce a certificate signed either by a Justice of the Peace, a postmaster, a State school teacher, or a police officer, to the effect that he is a person of good repute.

An applicant holding a certificate or letters of naturalisation obtained in the United Kingdom is required to produce such documents and to make a statutory declaration that he believes them to be genuine, that he obtained them without fraud, and that he intends to settle in the Commonwealth.

The Governor General in Council is empowered, on receipt of such an application, to exercise his discretion in granting or withholding a certificate of naturalisation, as he thinks most conducive to the public good, and every applicant, unless holding a certificate or letters obtained in the United Kingdom, is required, prior to the issue of the certificate, to take an oath or make affirmation of allegiance.

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As in the case of the State Act, provision is made that any alien woman marrying a British subject becomes thereby entitled to the same rights, powers, and privileges, and subject to the same obligations as a person who has obtained a certificate of naturalisation. A similar concession is made in the case of any infant whose father or whose mother (being a widow or divorced) has obtained a certificate of naturalisation, or whose mother has married a British subject, provided that the infant in question has at any time resided in Australia with such father or mother.

A person to whom a certificate of naturalisation is granted is not liable to any fee or charge in respect thereof.

At the last Census of this State, taken for the night of 31st March, 1901, one of the queries on the schedule related to the naturalisation of foreigners, every person born in foreign parts and claiming to be a British subject being requested to state whether the claim was based on parentage or naturalisation. As a result of this inquiry, 677 persons, resident in this State (576 males and 101 females) were returned as naturalised British subjects. No particulars, however, were obtained concerning the portions of the British Empire in which these persons had been naturalised. The contributing countries were as follows:—

Birthplace.	Males.	Females.	Total.
Germany	212	50	262
Sweden	76	1	77
Spain	48	2	50
Russia	40	10	50
Denmark	36	6	42
Norway	33	4	37
Italy	31	3	34
United States of America	17	11	28
France	17	5	22
Austria-Hungary	16	...	16
Holland	8	1	9
Switzerland	6	3	9
Greece	8	...	8
Japan	5	...	5
At sea	5	...	5
Belgium	4	...	4
China	3	1	4
Roumania	3	...	3
Poland	1	1	2
Turkey in Asia	1	1	2
Portugal	1	...	1
Turkey	1	...	1
Borneo	1	...	1
Reunion	1	...	1
Brazil	1	...	1
West Indies	1	...	1
Argentina	...	1	1
Samoa	...	1	1
Total	576	101	677

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4.—THE CENSUS OF 1901.

At a meeting of Australasian Premiers held in Sydney on 25th January, 1900, it was decided that a Conference of Government Statisticians should be held to arrange for the Collection and Compilation of the Census of 1901 upon a uniform principle throughout Australasia. In compliance with this decision, a conference took place in Sydney on the 26th February, 1900, and the following days, each of the seven Australasian colonies being represented by the officer in charge of the Statistical Department of his colony.

The business of the conference consisted in discussing, and agreeing to, such measures as would lead to uniformity in the following particulars:—(1.) The date of the Census. (2.) The questions to be asked. (3.) The methods of compiling the results.

The practice adopted by the Imperial Government of taking the Census for the night of the first Sunday in April would, it was felt, be extremely inconvenient on this occasion, as it would result in the Census being taken for the night of Easter Sunday, a date on which, owing to the holidays, the population would consequently be considerably displaced.

As also the climatic conditions usually experienced in the Northern and interior portions of Australia, represented respectively by floods and drought, are such as to render travelling during March both difficult and dangerous, it was thought advisable that, if any departure was made from the usual custom, a later rather than an earlier date should be chosen, so Sunday, the 28th April, was selected.

This selection was subsequently, however, over-ruled by a decision on the part of the Premiers of the several States that, notwithstanding the recognised objections, the Census should be taken on the date fixed by the Imperial authorities for the Census of the United Kingdom, namely, on Sunday, the 31st March.

The results achieved by the conference may be briefly stated as being the mutual adoption of a uniform procedure, by which the Census authorities throughout Australasia agreed to ask the same questions on the same date, and present the results in the various reports drawn up by them as nearly as practicable in the same manner.

The following summaries furnish a few of the principal results obtained under each head of inquiry in this State. For more detailed information reference must be made to the Census Report.

The original intention in connection with the Census of this State was to exclude all aboriginals, whether full-blooded or half-caste, from the returns of general population, and deal separately with the information respecting them. When, however, the tabulation of particulars relating to habitations had been practically completed, a notification was received that an opinion had been given by the Honourable the Attorney General of the Commonwealth to the effect that "in reckoning the population of the Commonwealth, half-castes are not aboriginal natives within the meaning of Section

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127 of 'The Commonwealth of Australia Constitution Act,' and should therefore be included." In order, consequently, to avoid the creation of two sets of population figures, half-caste aboriginals have been included in the total of the general population, and in all detailed tabulations except those relating to habitations, while particulars concerning full-blooded Aboriginals have been excluded from all tables with the exception of those specially dealing with Aboriginals.

Classified according to place of abode, the total population of 184,124 was, at the date of the Census, distributed as follows:—

Particulars.	Persons.
Inmates of Habitations	178,289
Persons camping out (including railway travellers)	716
Shipping population	4,168
Half-caste Aboriginals (not included in foregoing)	951
Total	184,124

Habitations.

This table gives the number of habitations in the State, classified according to the materials of which the outer walls were constructed, the particulars being further subdivided so as to show the number Occupied, Unoccupied, and Being Built:—

Materials.	Occupied Houses.	Unoccupied Houses.	Houses being built.	Total.	Percentage on total number of Habitations of specified materials.
					%
Stone	3,791	122	18	3,931	7·79
Brick	8,050	241	81	8,372	16·59
Concrete, Adobe, Pise ..	1,103	53	8	1,164	2·31
Iron	5,244	333	12	5,589	11·07
Wood	11,594	642	60	12,296	24·36
Wattle and Dab, Mud, Bark, etc.	464	30	1	495	0·98
Calico, Canvas, Hessian ..	17,921	702	5	18,628	36·90
Total specified	48,167	2,123	185	50,475	100·00
Unspecified	339	140	16	495	
Grand Total	48,506	2,263	201	50,970	

It will be seen that no fewer than 18,628 of the habitations enumerated, or about 37 per cent. of the total specified were built of "calico, canvas, or hessian," constituting the usual "Canvas Town" of a gold rush. In a very great number of cases the dwellings so designated are not what are ordinarily known as tents, but consist of a wooden frame covered with hessian, and in some instances contain several rooms. The number of wooden houses amounted to

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rather more than 24 per cent. of the total specified, while the number of houses built of stone and brick was almost identical with the number built of wood, the figures being: Stone and brick, 12,303; wood, 12,296.

From the subjoined table, which gives the number of inmates of houses of various materials, it will be seen that rather more than 37 per cent. lived in houses built of stone or brick, about 26½ per cent. in wooden houses, and about 21½ per cent. in those constructed of calico, canvas, or hessian. The average number of persons to an occupied dwelling was highest for stone houses, and lowest for those of calico, canvas, or hessian, being 5·77 in the former and 2·14 in the latter case.

Materials.	Occupied Houses.	Inmates.		Persons to an occupied house.
		Number.	Percentage on total specified.	
Stone	3,791	21,877	12·34	5·77
Brick	8,050	44,431	25·06	5·52
Concrete, Adobe, Pise	1,103	5,277	2·98	4·78
Iron	5,244	19,159	10·81	3·65
Wood	11,594	46,999	26·52	4·05
Wattle and Dab, Mud, Bark, etc. ..	464	1,135	0·64	2·45
Calico, Canvas, Hessian	17,921	38,375	21·65	2·14
Total specified	48,167	177,253	100·00	3·68
Unspecified	339	1,036	..	3·06
Grand Total	48,506	178,289	..	3·68

In the following table, houses, occupied, unoccupied, and being built, have been classified according to the number of rooms contained:—

Number of Rooms in Habitations.	Occupied Houses.	Unoccupied Houses.	Houses being built.	Grand Total.	Percentage on total number of Habitations of specified number of rooms.
					%
One room	13,804	673	8	14,485	28·76
Two rooms	6,755	522	31	7,308	14·51
Three and four rooms ..	16,504	694	80	17,278	34·31
Five and six rooms ..	7,129	148	42	7,319	14·53
Seven to ten rooms ..	2,814	62	10	2,886	5·73
Eleven to fifteen rooms ..	640	5	2	647	1·29
Sixteen to twenty rooms ..	221	4	1	226	0·45
Over twenty rooms ..	208	..	1	209	0·42
Total specified	48,075	2,108	175	50,358	100·00
Unspecified	431	155	26	612	
Grand Total	48,506	2,263	201	50,970	

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About 43 per cent. of the dwellings contained less than three rooms, and about 57 per cent. three rooms and upwards. This large proportion of houses of small capacity is principally due to the great number of temporary residences of calico, canvas, and hessian in use on the various goldfields of the State.

Particulars relative to the inmates of houses of various sizes are furnished in the annexed table, from which it will be seen that about 21 per cent. were living in residences containing less than three rooms, and about 79 per cent. in those consisting of three rooms and upwards:—

Number of Rooms in Habitations.	Occupied Houses.	Inmates.		Persons to an occupied house.
		Number.	Percentage on total specified.	
One room	13,804	18,987	10·73	1·38
Two rooms	6,755	17,888	10·12	2·65
Three and four rooms	16,504	66,930	37·84	4·06
Five and six rooms	7,129	38,619	21·84	5·42
Seven to ten rooms	2,814	19,158	10·83	6·81
Eleven to fifteen rooms	640	6,192	3·50	9·67
Sixteen to twenty rooms	221	3,309	1·87	14·97
Over twenty rooms	208	5,775	3·27	27·76
Total specified	48,075	176,858	100·00	3·68
Unspecified	431	1,431	..	3·32
Grand Total	48,506	178,289	..	3·68

It is of interest to note that for houses of the same size, whether situated within or outside of municipal boundaries, the average number of persons to an occupied house was found to be practically the same, the only marked exception being the case of houses containing over 20 rooms; and in this instance the number of such houses outside municipalities was small.

It would thus appear that the method of obtaining local intercensal estimates of population by making use of the number of occupied houses, as ascertained at a valuation undertaken by a municipal council or other local governing body, might be made to yield closely approximative results if the houses were properly classified according to the number of rooms contained. In view of the difficulty at present experienced by municipal and other authorities in obtaining, for intercensal periods, any information as to the population contained within the boundaries of the localities under their control, it is probable that the adoption of a system of this nature for estimating such particulars would be productive of exceedingly valuable results.

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Particulars concerning the number of occupied houses and their inmates for each of the divisions of the State described on page 288 are as follows:—

Divison.	Occupied Houses.	Inmates.	Persons to an occupied House.
Metropolitan	12,987	65,445	5·04
South-Western	11,873	50,114	4·22
Central and Eastern	22,464	59,066	2·63
Northern and North-Western ...	1,182	3,664	3·10
Total	48,506	178,289	3·68

In each of the four divisions above mentioned a different material predominates in the construction of the dwellings, brick being the principal material in the Metropolitan division; wood in the South-Western; calico, canvas, and hessian in the Central and Eastern; and iron in the Northern and North-Western. The materials which occupied second place in the several divisions were wood in the Metropolitan and the Northern and North-Western, brick in the South-Western, and iron in the Central and Eastern. It may be further noted that in the Central and Eastern division no fewer than 56 per cent. of the population were inmates of houses constructed of calico, canvas, and hessian.

In addition to those residing ashore, there were at the date of the Census 4,168 persons living on board of vessels of various kinds in Western Australian waters, particulars relative to these being as follows:—

Description of vessel.	Number.	Net Registered Tonnage.	Persons on Board.		
			Males.	Females.	Total.
Steamers	33	39,664	1,859	485	2,344
Ships, Barques, and Barquentines	27	28,932	363	5	368
Brigs, Brigantines and Schooners	45	2,147	518	15	533
Ketches, Cutters, Smacks, Luggers, etc.	183	2,402	898	2	900
Hulks and Dredges	11	..	19	4	23
Total	299	73,145	3,657	511	4,168

Of the 299 vessels shown above, 77, representing a tonnage of 39,258, and having on board 1,883 persons, were returned for the Port of Fremantle; while 20 vessels, with an aggregate tonnage of 21,857, and with 608 persons on board, were credited to Albany; these two ports being by far the largest contributors to the total tonnage. The vessels at Broome, Beagle Bay, and La Grange Bay, consisting mainly of the pearling fleet of the Broome District,

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numbered 162, and had on board no fewer than 1,158 persons, but represented a tonnage of only 4,008.

Ages.

The following table furnishes details concerning the ages of the people:—

Age.	Males.	Females.	Total.
Under 1 year	2,572	2,455	5,027
1 year and under 5	7,869	7,779	15,648
5 years and under 10	8,891	8,856	17,747
10 years and under 15	7,505	7,320	14,825
Unspecified children	8	15	23
15 years and under 20	7,088	5,849	12,937
20 " " 21	1,957	1,278	3,235
Total under 21	35,890	33,552	69,442
21 years and under 25	9,884	6,001	15,885
25 " " 30	15,822	8,677	24,499
30 " " 35	14,845	7,298	22,143
35 " " 40	12,441	5,322	17,763
40 " " 45	8,722	3,391	12,113
45 " " 50	5,220	2,151	7,371
50 " " 55	3,453	1,678	5,131
55 " " 60	2,311	1,177	3,488
60 " " 65	1,767	908	2,675
65 " " 70	1,101	570	1,671
70 " " 75	692	279	971
75 " " 80	290	133	423
80 " " 85	140	56	196
85 " " 90	30	21	51
90 " " 95	5	3	8
95 " " 100	1	1	2
Unspecified Adults	261	31	292
Total 21 and upwards	76,985	37,697	114,682
Grand Total	112,875	71,249	184,124

Out of the total population of 184,124, no fewer than 114,682, or about 62 per cent., were of the age of 21 and upwards, the percentages in the cases of males and females separately being 68 and 53 respectively. The quinquennial age group containing the largest number of persons was that of "25 years and under 30," the total therein amounting to 24,499, while the group "30 years and under 35," with 22,143, was second in order of importance. Between the ages of 21 and 45 there were 92,403 persons, or almost exactly 50 per cent. of the total population. The average ages at the date of the Census were:—Males, 28·01; females, 23·21; persons, 26·15.

A popular division of the male population, based on their bread-winning capabilities, separates them into three groups, according as they are of "dependent age," "supporting age," or

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"old age." The result of such a classification for this State is as follows:—

Age.	Period of Life.	Males.	
		Number.	Percentage on Total Males.
Under 15 years	Dependent age ..	26,845	23.78
15 years and under 65 ..	Supporting age ..	83,771	74.22
65 years and upwards ..	Old age	2,259	2.00
Total	.. ..	112,875	100.00

The following is a somewhat similar classification of the female population, based, however, on reproductive instead of on bread-winning capabilities:—

Age.	Period of Life.	Females.	
		Number.	Percentage on Total Females.
Under 15	Immature	26,425	37.09
15 years and under 50 ..	Reproductive	39,998	56.14
50 years and upwards ..	Sterile	4,826	6.77
Total	.. ..	71,249	100.00

The number of persons aged 65 years and upwards at the date of the Census was 3,322, of whom 2,259 were males and 1,063 females.

The number of males at what has been termed "Military age," that is, between 20 and 40, was, at the date of the Census, 54,949, or about 30 per cent. of the total population. This period of age appears, however, to be an unnecessarily restricted one, and, in the opinion of the local Defence authorities, the military age may more correctly, under present circumstances, be stated to be between 18 and 45. Between these limits there were in this State at the date of the Census 66,774 males, representing rather more than 36 per cent. of the total population. The corresponding percentages at the dates of the 1891 and 1881 Censuses were 29 and 20½ respectively.

In this State all children of the age of 6 years and under 14 are, except under certain special circumstances, required to receive a certain amount of schooling. The number of children of such age at the date of the Census was 13,214 males and 13,121 females, making a total of 26,335.

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Particulars relative to age for each of the divisions of the State, defined on page 288, are as follows:—

Age.	Metropolitan Division.		South-Western Division.		Central and Eastern Division.		Northern and North-Western Division.		The whole State.		
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Total.
Under 5 years	4,027	3,909	3,649	3,553	2,629	2,632	136	140	10,441	10,234	20,675
5 years and under 15	6,719	6,737	5,986	5,781	3,498	3,497	201	176	16,404	16,191	32,595
15 „ „ 21	3,383	3,160	2,703	2,255	2,716	1,643	243	69	9,045	7,127	16,172
21 „ „ 45	18,213	13,316	13,316	7,764	26,926	9,278	3,520	362	61,975	30,720	92,695
45 „ „ 65	3,924	2,687	3,366	1,907	4,866	1,273	595	47	12,751	5,914	18,665
65 years and upwards ...	856	500	983	448	388	109	32	6	2,259	1,063	3,322
Total	37,122	30,309	30,003	21,708	41,023	18,432	4,727	800	112,875	71,249	184,124

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In this table, 23 children of unspecified age have been included with the group "5 years and under 15," while 292 adults of unspecified age have been classed as "21 years and under 45."

It will be seen that for each of the age-groups specified, the Metropolitan contained more females than any other division, whilst for the three age-groups under 21 the males in that division also preponderated. In the case of males aged 21 and upwards, however, the largest numbers for the groups "21 and under 45" and "45 and under 65" were found in the recently populated Goldfields of the Central and Eastern Division, whilst the South-Western Division, which was the earliest settled portion of the State, contained the greatest number of those aged 65 and upwards.

Birthplaces.

The following table gives a classification of the population according to birthplace:—

Birthplace.	Males.	Females.	Total.
AUSTRALASIA—			
Commonwealth of Australia:			
Western Australia	26,529	26,134	52,663
New South Wales	8,395	5,727	14,122
Victoria	24,342	15,149	39,491
Queensland	1,474	1,121	2,595
South Australia	9,686	6,564	16,250
Tasmania	1,071	679	1,750
Australia (undefined)	61	20	81
Total, Commonwealth	71,558	55,394	126,952
New Zealand	1,757	947	2,704
Fiji	21	16	37
Total, Australasia	73,336	56,357	129,693
EUROPE—			
England (including Channel Isles, Scilly Isles, and Isle of Man)	17,212	8,164	25,376
Wales (including Isle of Anglesey) ..	644	265	909
Scotland (including Shetland and Orkney Isles)	3,953	1,447	5,400
Ireland	6,413	3,449	9,862
Great Britain (undefined)	3	1	4
Austria-Hungary	390	28	418
Belgium	25	5	30
Denmark (including Iceland)	281	39	320
France (including Corsica)	170	84	254
Germany	1,255	267	1,522
Greece	146	2	148
Holland	36	5	41
Italy	1,296	58	1,354
Norway	405	15	420
Portugal	37	3	40
Russia	323	66	389
Spain	142	9	151
Sweden	715	39	754
Switzerland	98	20	118
Other European Countries	88	29	117
Total, Europe	33,632	13,995	47,627

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Birthplaces—continued.

Birthplace.	Males.	Females.	Total.
ASIA—			
British India	625	123	748
Ceylon	67	17	84
Straits Settlements	323	9	332
Afghanistan	261	..	261
China	1,459	16	1,475
Japan	658	209	867
Java	226	4	230
Philippine Islands	370	..	370
Other Asiatic Countries	427	16	443
Total, Asia	4,416	394	4,810
AFRICA—			
Cape Colony	27	16	43
Mauritius	58	20	78
Other African Countries	75	47	122
Total, Africa	160	83	243
AMERICA—			
Canada	205	62	267
United States of America	526	132	658
Other American Countries	187	39	226
Total, America	918	233	1,151
Polynesia	31	10	41
At Sea	182	135	317
Unspecified	200	42	242
GRAND TOTAL	112,875	71,249	184,124

The Western Australian born portion of the population at the date of the Census numbered only 55,663 persons (26,529 males and 26,134 females), or less than 29 per cent. of the total. As regards the remainder of the population, Victoria was the largest contributor, the number who claimed that State as their birthplace being 39,491, of whom 24,342 were males and 15,149 females. It will thus be seen that the number of Western Australian born males exceeded the number of Victorian born by only 2,187. Next to Victoria the largest contributor to the Western Australian population was England, with a total of 25,376 persons, 17,212 being males, and 8,164 females. Then followed South Australia, 16,250; New South Wales, 14,122; Ireland, 9,862; and Scotland, 5,400. The number of Australasian born was 129,693, or about 70 per cent. of the total population.

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The population under 21 years of age and of 21 years and upwards, for various birthplaces, is as follows:—

Birthplace.	Males.		Females.		Persons.		
	Under 21 years.	21 years and upwards	Under 21 years.	21 years and upwards	Under 21 years.	21 years and upwards	Total.
BRITISH EMPIRE—							
Australasia:							
Commonwealth of Australia	33,454	38,104	31,863	23,531	65,317	61,635	126,952
New Zealand	420	1,337	323	624	743	1,961	2,704
Fiji	6	15	8	8	14	23	37
United Kingdom	1,299	26,926	1,123	12,203	2,422	39,129	41,551
Other British Possession ..	130	1,339	58	242	188	1,581	1,769
FOREIGN COUNTRIES—							
European	318	5,050	73	573	391	5,623	6,014
Asiatic	178	3,193	30	214	208	3,407	3,615
African	16	42	13	23	29	65	94
American	34	606	29	125	63	731	794
Polynesian	5	21	2	7	7	28	35
At Sea	19	163	20	115	39	278	317
Unspecified	11	189	10	32	21	221	242
Total	35,890	76,985	33,552	37,697	69,442	114,682	184,124

Between the dates of the Censuses of 1891 and 1901 the population of Western Australia increased by 134,342 persons, of whom only 24,838 were what may be termed the natural increase of the State, being the excess of those born within its boundaries over the number of Western Australian born who died or left the State during the decade, whilst those residents of Western Australia who claimed to have first seen the light in one or other of the five remaining States of the Commonwealth increased during the same period by 71,219. If to these figures there be added the increase of 2,557 amongst those who recorded their birthplaces as New Zealand or Fiji, it will be seen that there has been in all a net gain of 98,614 in the Australasian born population of the State, leaving a balance of 35,728 due to increases amongst those born in other parts of the world.

Of this balance, 32,148 are accounted for by additions to the numbers of European birth, the number born in Great Britain having increased by no fewer than 27,015, those born in Italy by 1,318, those in Germany by 1,232, and those in Sweden and Norway by 970, while increases of 389 and 318 were experienced in the number who hailed from Austria-Hungary and Russia respectively. The natives of Denmark showed an advance of 278, France 182, and Greece 131, the remaining 315 being distributed amongst—Switzerland, 103; Spain, 62; Portugal, 30; Belgium, 26; Holland, 22; and other minor European States, 72.

Of the remainder, the Asiatic born were responsible for an increase of 2,341, the principal contributors thereto being Japan, 607; China, 561; and British India, 503. Those born in Africa increased by only 124, while the number of American born experienced a gain of 773, of which 189 were due to Canada. Advances of 13 in the number born in Polynesia, 203 in the number

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born at sea, and 126 in the number of those whose birthplaces were unspecified, make up the 342 which constitute the balance of the total gain.

Classified according to birthplace, the population of each of the divisions of the State, defined on page 288, is as follows:—

Birthplace.	Metropolitan Division.		South-Western Division.		Central and Eastern Division.		Northern and North-Western Division.		The whole State.		
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Total.
AUSTRALASIA:											
Western Australia	9,199	9,800	13,410	12,977	3,174	2,878	746	479	26,529	26,134	52,663
New South Wales	2,803	2,476	1,400	956	3,988	2,276	204	19	8,395	5,727	14,122
Victoria	7,819	6,972	4,203	2,626	11,920	5,492	400	59	24,342	15,149	39,491
Queensland	424	404	181	150	801	555	68	12	1,474	1,121	2,595
South Australia	2,627	2,454	1,986	1,311	4,918	2,779	155	20	9,686	6,564	16,250
Tasmania	345	365	153	86	544	226	29	2	1,071	679	1,750
Australia (undefined)	25	9	9	2	27	9	..	..	61	20	81
New Zealand	650	511	225	111	838	321	44	4	1,757	947	2,704
Fiji	10	11	2	3	9	2	..	..	21	16	37
Total, Australasia	23,902	23,002	21,569	18,222	26,219	14,538	1,646	595	73,336	56,357	129,693
EUROPE:											
England	6,528	4,224	4,265	1,980	5,974	1,910	448	51	17,215	8,165	25,380
Wales	155	112	117	52	353	99	19	2	644	265	909
Scotland	1,426	738	729	272	1,644	427	154	10	3,953	1,447	5,400
Ireland	1,891	1,563	1,295	890	3,039	976	188	20	6,413	3,449	9,862
Other European Countries	1,558	287	1,098	137	2,592	244	159	1	5,407	669	6,076
Total, Europe	11,558	6,924	7,504	3,331	13,602	3,656	968	84	33,632	13,995	47,627
ASIA	1,162	133	631	60	636	85	1,987	116	4,416	394	4,810
AFRICA	67	49	28	15	49	18	16	1	160	83	243
AMERICA	331	111	175	42	336	79	76	1	918	233	1,151
POLYNESIA	8	5	3	3	6	2	14	..	31	10	41
AT SEA	60	71	43	31	68	30	11	3	182	135	317
UNSPECIFIED	34	14	50	4	107	24	9	..	200	42	242
GRAND TOTAL	37,122	30,309	30,003	21,708	41,023	18,432	4,727	800	112,875	71,249	184,124

It will be seen from the foregoing table, that as regards most of the birthplaces, the number of males in the "Central and Eastern" Division exceeded the number for any other division, there being, however, three very important exceptions, viz., Western Australia, which had its largest number of males in the "South-Western"; England, with its largest number in the "Metropolitan"; and Asia with its largest in the "Northern and North-Western" Division.

In the case of females, however, there were only two birthplaces of importance, viz., Queensland and South Australia, which were more largely represented in the "Central and Eastern" than in any of the other divisions. With the exception of these two and of Western Australia, where, as in the case of the males, the greatest number occurred in the "South-Western" Division, all the birthplaces appearing in the table show a larger number of females for the "Metropolitan" than for any other division.

It is of interest to note that as regards the "Northern and North-Western," the Pearling and Sub-tropical Division, out of a total population of 5,527, no fewer than 2,103, or about 38 per cent., were of Asiatic birth, or, in other words, out of the total Asiatic born population of Western Australia, amounting to 4,810, about 44 per cent. were, at the time of the Census, resident in this portion of the State.

Of the total population of 184,124, there were 174,323, or more than 94½ per cent., recorded as British subjects, 173,013 having been born in British Possessions; while of those born elsewhere 633 claimed to be British subjects by parentage, and 677 by Naturalisation.

Religions.

Particulars relative to religions are as follows:—

Religion.	Males.	Females.	Total.
I.—CHRISTIAN—			
Church of England	45,027	30,672	75,654
Methodist	13,969	10,571	24,540
Presbyterian	9,252	5,455	14,707
Congregational	2,406	1,998	4,404
Baptist	1,625	1,289	2,914
Church of Christ	534	511	1,045
Salvation Army	971	719	1,690
Lutheran	1,401	302	1,703
Seventh Day Adventist	101	110	211
Unitarian	116	34	150
Protestant (undefined)	1,206	641	1,847
Roman Catholic	24,623	15,961	40,584
Greek Catholic	170	2	172
Catholic (undefined)	840	469	1,309
Other Christians	323	238	561

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Religions—continued.

Religion.	Males.	Females.	Total.
II.—NON-CHRISTIAN—			
Jew, Hebrew, Israelite	755	504	1,259
Mahomedan	1,176	15	1,191
Buddhist	656	105	761
Confucian	74	..	74
Others	129	28	157
III.—INDEFINITE—			
No Denomination	1,450	411	1,861
Freethinker	1,219	106	1,325
Agnostic	99	7	106
Others	95	50	145
IV.—NO RELIGION—			
Atheist	32	3	35
No Religion	1,100	266	1,366
Pagan	252	12	264
Others	7	3	10
V.—OBJECT TO STATE	2,429	624	3,053
VI.—UNSPECIFIED	838	188	1,026
Total	112,875	71,249	184,124

In the case of the query relating to religion, it was agreed at the Conference of Statisticians that the furnishing of an answer should be optional, and that any person having an objection to stating his or her religious belief might write the word "object" in the column provided for Religion. 3,053 persons availed themselves of this provision, and as in 1,026 other cases no entry of any sort was made, there remain 180,045 persons who professed some form either of belief or disbelief. Of this number 75,654 professed adherence to the Church of England, 40,584 to the Roman Catholic Church, 24,540 to the various divisions of the now amalgamated Methodist Church, and 14,707 to the Presbyterian Church. In addition to the 40,584 shown above as belonging to the Roman Catholic Church, there were 1,309 returned simply as "Catholics," the majority of whom were probably Roman Catholics. If these be added to it, the Roman Catholic total will then amount to 41,893.

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Classified according to the Territorial Divisions defined on page 288, the particulars for the adherents of the principal denominations are as follows:—

Religion.	Metropolitan Division.		South-Western Division.		Central and Eastern Division.		Northern and North-Western Division.		Total.		
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Total.
Christian:											
Church of England	14,945	12,743	14,450	10,775	14,297	6,745	1,335	364	45,027	30,627	75,654
Methodist	4,101	3,775	3,482	3,009	6,285	3,766	101	21	13,969	10,571	24,540
Presbyterian	3,468	2,778	1,720	1,069	3,822	1,588	242	20	9,252	5,455	14,707
Congregational	1,625	1,496	390	320	352	174	39	8	2,406	1,998	4,404
Baptist	706	676	406	289	497	320	16	4	1,625	1,289	2,914
Church of Christ	305	313	71	69	158	129	..	..	534	511	1,045
Salvation Army	282	259	277	217	408	243	4	..	971	719	1,690
Lutheran	428	119	316	64	599	114	58	5	1,401	302	1,703
Seventh Day Adventist	34	50	66	58	1	2	..	..	101	110	211
Unitarian	58	18	21	7	37	9	..	..	116	34	150
Protestant (undefined)	720	462	89	48	380	128	17	3	1,206	641	1,847
Roman Catholic	6,987	6,140	6,817	5,191	9,835	4,472	964	158	24,623	15,961	40,584
Greek Catholic	68	2	17	..	84	..	1	..	170	2	172
Catholic (undefined)	378	297	71	34	381	138	10	..	840	469	1,309
Other Christians	152	150	51	43	84	42	36	3	323	238	561
Non-Christians:											
Jew, Hebrew, Israelite	455	338	80	51	215	115	5	..	755	504	1,259
Mahomedan	165	2	39	2	374	4	598	7	1,176	15	1,191
Buddhist	191	3	72	..	67	33	326	69	656	105	761
Confucian	21	..	40	..	1	..	12	..	74	..	74
Others	35	19	26	1	29	7	39	1	129	28	157
Indefinite	764	267	537	175	1,375	121	187	11	2,863	574	3,437
No Religion	181	40	286	95	389	30	535	119	1,391	284	1,675
Object to state	680	281	478	156	1,176	185	95	2	2,429	624	3,053
Unspecified	373	81	201	35	177	67	87	5	838	188	1,026
Total	37,122	30,309	30,003	21,708	41,023	18,432	4,727	800	112,875	71,249	184,124

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Of the 24 religious groups shown above, 12 were more largely represented in the Metropolitan than in any of the other divisions, these being respectively the Church of England, Presbyterian, Congregational, Baptist, Church of Christ, Unitarian, Protestant (undefined), Catholic (undefined), other Christians, Hebrews, Others (non-Christian), and Unspecified. In only two cases, viz., those of the Seventh Day Adventists and the Confucians, were the adherents more numerous in the South-Western than in any of the other divisions. The numbers in both instances were, however, small. Six of the groups, viz., the Methodist, Salvation Army, Lutheran, Roman Catholic, Greek Catholic, Indefinite, and "Object to state" preponderated in the Central and Eastern Division, while three, viz., Mahomedan, Buddhist, and "No religion" were most numerously represented in the Northern and North-Western Division.

In the case of female adherents separately, however, the number in the Metropolitan exceeded that in any of the other divisions in all except four instances, namely, the Seventh Day Adventists, who had their largest number of females in the South-Western Division, and the Mahomedan, Buddhist, and "No religion" groups in the Northern and North-Western.

It will be noticed that in the case of the male adherents of the Church of England, the numbers in the Metropolitan, the South-Western, and the Central and Eastern Divisions were very nearly equal to one another.

A further point of interest is the fact that out of a total of 5,338 persons in the Northern and North-Western Division, concerning whom particulars relative to religion were supplied, 1,057, or nearly 20 per cent., were adherents of non-Christian religions, while 654, or rather more than 12 per cent., were returned as of "No religion," the former representing more than 30 per cent. of the total number of adherents of non-Christian religions in the whole State, and the latter 39 per cent. of the "No religion" total.

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Conjugal Condition.

The attached table furnishes particulars concerning Conjugal Condition in conjunction with age:—

Age.	Married.		Never Married.		Widowed.		Divorced.		Not stated.		Total.		
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Total.
*Under 14 years	..	..	25,426	25,098	..	..	..	..	..	..	25,426	25,098	50,524
14 years and under 15	..	..	1,419	1,327	..	..	..	..	..	..	1,419	1,327	2,746
15 " " 16	..	1	1,364	1,201	..	..	..	..	..	1	1,364	1,203	2,567
16 " " 17	2	7	1,326	1,187	..	..	..	..	..	..	1,328	1,194	2,522
17 " " 18	..	30	1,293	1,053	..	..	..	..	..	1	1,293	1,084	2,377
18 " " 19	6	116	1,417	1,084	..	..	..	..	..	..	1,423	1,200	2,623
19 " " 20	8	190	1,672	977	..	1	..	..	..	..	1,680	1,168	2,848
20 " " 21	39	376	1,915	901	3	..	..	..	..	1	1,957	1,278	3,235
21 " " 25	886	2,704	8,949	3,248	14	36	6	2	29	11	9,884	6,001	15,885
25 " " 30	4,501	5,920	11,171	2,605	95	128	9	12	46	12	15,822	8,677	24,499
30 " " 35	6,530	5,936	8,044	1,104	216	247	18	8	37	3	14,845	7,298	22,143
35 " " 40	6,557	4,434	5,436	568	352	305	25	10	21	5	12,441	5,322	17,763
40 " " 45	4,896	2,803	3,376	279	409	298	23	7	18	4	8,722	3,391	12,113
45 " " 50	3,121	1,715	1,729	169	348	266	11	1	11	..	5,220	2,151	7,371
50 " " 55	2,050	1,214	1,035	86	343	376	13	2	12	..	3,453	1,678	5,131
55 " " 60	1,433	740	578	51	290	385	2	..	8	1	2,311	1,177	3,488
60 " " 65	967	458	496	29	294	420	2	..	8	1	1,767	908	2,675
65 " " 70	554	253	331	14	211	303	2	..	3	..	1,101	570	1,671
70 " " 75	283	88	205	5	201	183	..	..	3	3	692	279	971
75 " " 80	133	33	85	5	72	95	..	..	..	..	290	133	423
80 " " 85	56	9	24	3	59	44	..	..	1	..	140	56	196
85 years and upwards ..	12	2	6	2	17	21	..	..	1	..	36	25	61
Unspecified adults ..	29	14	109	8	8	4	..	..	115	5	261	31	292
Total	32,063	27,043	77,456	41,004	2,932	3,112	111	42	313	48	112,875	71,249	184,124

* Including children of unspecified age.

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Under the law of England, which in this respect holds good also in this State, a person who has reached the age of 14 years if a male, or 12 years if a female, can contract a valid marriage. The youngest age, however, at which persons were returned on the Census Schedules of this State as being married was 15 in the case of females and 16 in the case of males, there being one recorded in the former instance and two in the latter. Fifty-five only of the married males were under 21 years of age as compared with 720 of the married females, whilst there were in the State 5,020 more married males of all ages than married females. The disproportion between the number of the "never married" males and females of adult age is very marked. Thus the number of never married males, aged 21 and upwards, was 41,624, while the number of females of 21 and upwards, similarly situated, amounted to only 8,176, proportionately about one-fifth. A slight excess of females, however, occurs in the case of widowed persons, the number of widows exceeding the number of widowers by 180; but amongst the divorced, and also amongst those whose conjugal condition was unspecified, the males again largely preponderate.

Particulars relative to the conjugal condition of the population of each of the Territorial Divisions, defined on page 288, are as follows:—

Divisions.	Population aged 14 years and upwards.														
	Married.				Never married.		Widowed.		Divorced.		Not stated.		Total.		
	Males.		Females.												
	Wife present.	Wife absent.	Husband present.	Husband absent.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Total.
Metropolitan	9,423	2,218	9,423	1,857	14,293	7,449	953	1,493	28	22	54	19	26,969	20,263	47,232
South-Western	6,408	1,820	6,412	1,138	11,731	4,379	833	881	21	2	67	7	20,880	12,819	33,699
Central and Eastern ...	6,859	4,701	6,859	1,057	22,339	3,908	1,058	708	59	18	178	21	35,194	12,571	47,765
Northern and North-Western	236	398	226	71	3,667	170	88	30	3	...	14	1	4,406	498	4,904
Total	*22,926	9,137	†22,920	4,123	52,030	15,906	2,932	3,112	111	42	313	48	87,449	46,151	133,600

* Including 19 married to full-blooded aboriginal wives. † Including 13 married to full-blooded aboriginal husbands.

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In the Metropolitan Division, 43 per cent. of the males aged 14 and upwards were married, as were also 40 per cent. of those of same age in the South-Western, 33 per cent. in the Central and Eastern, and only 14 per cent. in the Northern and North-Western. In the case of females, however, the positions were altered, no fewer than 63 per cent. of those aged 14 years and upwards in the Central and Eastern Division, and 60 per cent. of those in the Northern and North-Western being married, as against 59 per cent. in the South-Western and 56 in the Metropolitan.

Grouping together the "never married," the "widowed," and the "divorced," it will be seen that the disproportion between the number of unmarried males of 14 years of age and upwards and the number of females of like age and condition is, in some of the divisions, very marked. In the Metropolitan Division there were in this group 59 females to each 100 males, while in the South-Western there were but 42, in the Central and Eastern only 20, and in the Northern and North-Western but little more than five females to each 100 males. Failing a considerable influx of marriageable females, the matrimonial prospects of the greater portion of the unmarried male residents of the two last-named divisions do not appear very bright; while, even in the cases of the Metropolitan and South-Western Divisions, the disproportion although not so large is still of considerable magnitude.

The relative ages of the husbands and wives who were together at the date of the Census may, for certain groups of ages, be seen in the following summary:—

Ages of Husbands.	Ages of Wives.					Number of Husbands		
	Under 21.	21 and under 40.	40 and under 50.	50 and upwards.	Unspecified.	Whose wives were with them.	Whose wives were absent.	Total.
Under 21	16	10	...	...	...	26	29	55
21 and under 40	597	13,147	395	12	7	14,158	4,325	18,483
40 and under 50	8	3,053	2,131	143	2	5,337	2,683	8,020
50 and upwards	1	345	1,116	1,943	...	3,405	2,084	5,489
Unspecified	1	7	1	...	4	13	16	29
Number of Wives—								
Whose husbands were with them	623	16,562	3,643	2,098	13	22,939	9,137	32,076
Whose husbands were absent	99	2,443	878	700	3	4,123	...	...
Total	722	19,005	4,521	2,798	16	27,062	...	...

Of the total number of wives present with their husbands at the date of the Census, 17,185, or 75 per cent., were under 40 years of age, while in 13,147 instances, or 57 per cent. of the total, both

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parties were between the ages of 21 and 40. In 16 cases the couples were very youthful, both husband and wife in each instance being less than 21 years of age. The youngest couples recorded were one consisting of a husband of 19 and a wife of 18, and three comprising in each a husband of 20 and a wife of 17.

Of the wives whose husbands were absent, 2,542, or 62 per cent., were below the age of 40; while 700, or 17 per cent., were of 50 years and upwards.

The following summary furnishes particulars concerning the relative birthplaces of the husbands and wives who were together at the date of the Census:—

Birthplaces of Husbands.	Birthplaces of Wives.						Number of Husbands		
	Australasia.	United Kingdom.	Other British Possessions.	European Foreign Countries.	Other Foreign Countries.	At Sea and not stated.	Whose wives were with them.	Whose wives were absent.	Total.
Australasia	10,261	1,797	40	41	31	36	12,206	3,782	15,988
United Kingdom ...	4,290	4,735	75	53	41	32	9,226	3,894	13,120
Other British Possessions	119	70	16	2	3	...	210	217	427
European Foreign Countries	462	252	5	244	2	3	968	929	1,897
Other Foreign Countries	121	66	1	2	62	1	253	274	527
At Sea and not stated	54	17	...	...	...	5	76	41	117
Number of Wives—									
Whose husbands were with them ...	15,307	6,937	137	342	139	77	22,939	9,137	32,076
Whose husbands were absent	2,424	1,516	28	71	57	27	4,123	...	...
Total	17,731	8,453	165	413	196	104	27,062	...	...

Out of the total number of cases in which husband and wife were living together, there were 10,261, or about 45 per cent., in which both of the parties were of Australasian birth, while in 5,046 instances, or about 22 per cent., the wife was Australasian born and the husband born elsewhere, and in 1,945 instances, or about 8½ per cent., the husband was of Australasian birth and the wife of other birthplace. It will thus be seen that in rather more than 75 per cent. of the cases, one or both of the parties were Australasian born. The remainder consisted mainly of couples of which one or both parties hailed from the United Kingdom, the number of such being 5,341, or about 23 per cent. of the total, leaving only 346 cases, or about 1½ per cent., in which neither party was born in Australasia or the United Kingdom. In the case of no fewer than 21,083 couples, or about 92 per cent. of the total, both parties had been born in either Australasia or the United Kingdom.

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Summarised particulars concerning the relative religions of the husbands and wives who were together at the date of the Census are as follows:—

Religions of Husbands.	Religions of Wives.										Number of Husbands.		
	Church of England.	Methodist.	Presbyterian.	Congregational.	Baptist.	Roman Catholic.	Other Christians.	Hebrew.	Other Non-Christian Religions.	Indefinite, No Religion, Object to state, and Unspecified.	Whose wives were with them.	Whose wives were absent.	Total.
Church of England	8,310	304	202	37	48	980	70	11	2	31	9,995	3,677	13,672
Methodist	236	2,914	58	13	24	97	29	1	...	4	3,376	1,037	4,413
Presbyterian	317	73	1,464	9	27	149	22	2	...	6	2,069	836	2,905
Congregational	71	9	7	540	14	24	7	...	...	6	678	119	797
Baptist	45	21	12	6	329	6	6	...	...	1	426	137	563
Roman Catholic	435	71	53	7	6	3,278	34	4	...	12	3,900	1,798	5,698
Other Christians	129	54	37	7	8	70	804	3	...	10	1,122	587	1,709
Hebrew	22	2	2	2	...	8	...	157	...	3	196	54	250
Other non-Christian Religions ...	3	...	...	...	...	3	2	...	31	3	42	205	247
Indefinite, No Religion, Object to State, and Unspecified	277	101	50	25	23	137	36	2	2	482	1,135	687	1,822
Number of Wives—													
Whose husbands were with them ...	9,845	3,549	1,885	646	479	4,752	1,010	180	35	558	22,939	9,137	32,076
Whose husbands were absent ...	1,866	497	314	74	79	957	211	30	19	76	4,123	...	...
Total	11,711	4,046	2,199	720	558	5,709	1,221	210	54	634	27,062	...	...

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From this table it appears that, as regards marriage, similarity of religious belief exercises a very marked influence, stronger even, as far as this State is concerned, than that exercised by either identity of birthplace or similarity of age.

The extent of this influence is more clearly seen in the following table which gives for some of the principal religious bodies the number and proportion of cases in which husband and wife were of the same religion :—

Religion.	Cases in which Husband and Wife residing together were of same Religion.		
	Number.	Percentage on Total number of Husbands of such Religions residing with their Wives.	Percentage on total number of wives of such Religions residing with their Husbands.
Church of England ...	8,310	83·28	85·23
Methodist	2,914	86·39	82·93
Presbyterian ...	1,464	70·96	78·41
Congregational ...	540	80·24	84·38
Baptist	329	77·23	70·00
Church of Christ ...	150	92·02	79·79
Salvation Army ...	190	89·62	82·97
Lutheran	95	36·40	73·08
Roman Catholic ...	3,278	84·20	69·79
Hebrew	157	81·35	87·22

If the persons who were returned on the Census Schedules simply as "Catholic" be treated as being "Roman Catholic," the figures for that denomination will be 3,367 cases—84·01 per cent. of husbands, and 69·61 per cent. of wives, respectively—instead of those given above.

In computing the percentages given in this table, cases in which one of the parties failed to supply any information as to religious belief have been excluded from the totals.

In the four foregoing tables dealing with the relative ages, birthplaces and religions of husbands and wives who were together at the date of the Census, the figures given include 19 full-blooded aboriginal females and 13 full-blooded aboriginal males married to husbands and wives respectively who were not full-blooded aboriginals.

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Education.

In the following table the population has been tabulated according to Education in conjunction with age :—

Degree of Education.	Under 3 years.	3 years and under 6.	6 years and under 14.	14 years and under 21.	21 years and upwards.	Unspecified.	Total.
English Language—							
Read and Write—							
Males	..	204	11,006	9,885	69,759	114	90,968
Females	..	211	11,031	8,236	35,682	28	55,188
Read only—							
Males	..	340	687	45	555	..	1,627
Females	..	313	579	24	488	..	1,404
Foreign Language only							
Read and Write							
Males	..	..	14	214	2,575	10	2,813
Females	..	..	..	17	223	1	241
Read only—							
Males	..	..	..	2	49	..	51
Females	..	..	..	1	5	..	6
Cannot read—							
Males	6,836	4,803	1,430	280	3,305	33	16,687
Females	6,741	4,653	1,434	135	1,071	14	14,048
Not stated—							
Males	..	21	77	38	481	112	729
Females	..	44	77	41	197	3	362
Total—							
Males	6,836	5,368	13,214	10,464	76,724	269	112,875
Females	6,741	5,221	13,121	8,454	37,666	46	71,249

Out of the total population of 184,124, the degree of education of 1,091 was unspecified Of the remaining 183,033, there were 146,156 who were able to read and write English, 3,031 who could read English but not write it, 3,054 who could read and write some Foreign Language, but could not read English, and 57 who could read some Foreign Language, but could not write it nor yet read English, while 30,735 were returned as being unable to read any language. Of these latter, however, no fewer than 23,033, or about 75 per cent., were under the age of 6 years.

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Grouped under the heads of the four territorial divisions defined on page 288, particulars relative to the elementary education of the population aged 5 years and upwards are as follows:—

Divisions.	Population aged 5 Years and upwards.														
	English Language.				Foreign Language only.				Cannot read.		Not stated.		Total.		
	Read and Write.		Read only.		Read and Write.		Read only.								
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Total.
Metropolitan	29,869	24,408	542	510	823	46	12	...	1,615	1,246	234	190	33,095	26,400	59,495
South-Western	22,953	15,731	586	529	442	24	8	1	2,176	1,790	189	80	26,354	18,155	44,509
Central and Eastern	35,637	14,638	391	276	716	89	29	5	1,352	701	269	91	38,394	15,800	54,194
Northern and North-Western	2,509	411	52	19	832	82	2	...	1,159	147	37	1	4,591	660	5,251
Total	90,968	55,188	1,571	1,334	2,813	241	51	6	6,302	3,884	729	362	102,434	61,015	163,449

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Of the four divisions shown in the above table, the Metropolitan contained the largest number of persons able to "read and write" English, and the largest number whose degree of education was "not specified"; the South-Western contained the largest number able to "read only" in English, and the largest number "unable to read"; whilst the Central and Eastern contained the largest number of males able to "read and write" English, and the largest number of persons able to "read only" in a foreign language.

Out of a total of 59,071 persons aged 5 years and upwards in the Metropolitan division, whose degree of education was specified, about 4¾ per cent. were unable to read in any language. The corresponding percentages of illiterates in the other divisions were: 9 for the South-Western, 3¾ for the Central and Eastern, and 25 for the Northern and North-Western, the high percentage in the case of the last-named being mainly due to the large proportion of Asiatics contained in the population of this division.

Schooling.

Particulars relative to the number of children receiving instruction are as follows:—

Place of Instruction.		3 years and under 6	6 years and under 14.	14 years and under 21.	Unspecified.	Total.
State School	Males ..	926	9,047	503	..	10,476
	Females..	828	8,081	581	4	9,494
Private School	Males ..	70	519	83	..	672
	Females..	72	873	200	..	1,145
Denominational School ..	Males ..	198	1,776	181	..	2,155
	Females..	186	2,092	266	1	2,545
At Home	Males ..	355	782	90	1	1,228
	Females..	381	948	110	..	1,439
School not stated	Males ..	21	106	14	1	142
	Females..	13	109	14	..	136
Total receiving Instruction	Males ..	1,570	12,230	871	2	14,673
	Females..	1,480	12,103	1,171	5	14,759

It will be seen, therefore, that out of a total of 29,432 children receiving instruction at the date of the Census, 19,970, or about 68 per cent., were being educated at State Schools; 4,700, or almost 16 per cent., at Denominational Schools; 2,667, or slightly over 9 per cent., at home; 1,817, or rather more than 6 per cent., at private schools; while in the case of 278 children, or somewhat less than one per cent. of the total, the word "scholar" was inserted on the schedule, but the nature of the place of instruction was unspecified.

The number of children of school age (6 years and under 14) who were not recorded as receiving instruction of any kind was 2,002, of whom 984 were males, and 1,018 females.

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In the following table the children receiving instruction in each of the territorial divisions, defined on page 288, have been classified according to place of instruction:—

Place of Instruction.	Number of Children Receiving Instruction.														
	Metropolitan Division.			South-Western Division.			Central and Eastern Division.			Northern and North-Western Division.			Total.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
State School	4,406	3,930	8,336	3,830	3,476	7,306	2,163	2,009	4,172	77	79	156	10,476	9,494	19,970
Private School ...	335	690	1,025	171	218	389	166	237	403	1	...	1	673	1,145	1,818
Denominational School	1,187	1,373	2,560	574	610	1,184	391	559	950	3	3	6	2,155	2,545	4,700
At Home	261	350	611	667	779	1,446	258	272	530	42	38	80	1,228	1,439	2,667
School not stated ...	44	54	98	35	32	67	58	50	108	4	...	4	141	136	277
Total	6,233	6,397	12,630	5,277	5,115	10,392	3,036	3,127	6,163	127	120	247	14,673	14,759	29,432

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It will be seen that the Metropolitan Division contained the largest numbers for all three classes of school, while the South-Western, with its sparse agricultural population, contained the largest number being educated "at home." In the Metropolitan Division the children attending State schools, owing probably to the number of other high-class institutions offering special advantages existing therein, and which parents appear to have freely availed themselves of, only amounted to 66½ per cent. of the total number receiving instruction in that division, the corresponding percentages for the other divisions being South-Western, 71, Central and Eastern, 69, and Northern and North-Western 64.

Of the total of 10,867 children of school age in the Metropolitan Division, 10,428, or 96 per cent., were receiving instruction, the corresponding percentages in the case of the other divisions being South-Western 90, Central and Eastern 91½, and Northern and North Western 62½.

In the following table are given for each sex and age the number of children recorded as receiving instruction, and the percentage of that number on the total number of children of such sex and age; similar particulars being also shown for the total number of children irrespective of sex:—

Age.	Children Receiving Instruction.					
	Males.		Females.		Total.	
	Number.	Percentage on total number of males of same age.	Number.	Percentage on total number of females of same age.	Number.	Percentage on total number of persons of same age.
3 years...	114	5·93	92	5·04	206	5·49
4 „ ...	429	25·52	432	25·91	861	25·72
5 „ ...	1,027	58·25	956	55·32	1,983	56·80
6 „ ...	1,491	84·48	1,490	84·13	2,981	84·30
7 „ ...	1,725	93·34	1,689	92·50	3,414	92·92
8 „ ...	1,736	94·55	1,683	94·66	3,419	94·60
9 „ ...	1,608	95·77	1,668	95·15	3,276	95·45
10 „ ...	1,566	95·43	1,576	95·40	3,142	95·41
11 „ ...	1,465	96·57	1,453	94·78	2,918	95·67
12 „ ...	1,449	93·18	1,377	94·44	2,826	93·79
13 „ ...	1,190	86·67	1,167	86·44	2,357	86·56
14 „ ...	550	38·76	655	49·36	1,205	43·88
15 „ ...	214	15·69	302	25·10	516	20·10
16 „ ...	73	5·50	151	12·65	224	8·88
17 „ ...	23	1·78	41	3·78	64	2·69
18 „ ...	9	0·63	17	1·42	26	0·99
19 „ ...	2	0·12	4	0·34	6	0·21
20 „ ...	...	...	1	0·08	1	0·03

The percentages for compulsory school-ages were lowest at the extreme ages (6 and 13), being, in the cases both of males and

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Of the total of 74,234 males enumerated who had been in this State less than 10 years, no fewer than 35,240, or about 47½ per cent., were resident in the Central and Eastern Division; while 23,880, or about 32 per cent., were in the Metropolitan; 12,406, or about 17 per cent., in the South-Western; and 2,708, or about 3½ per cent., in the Northern and North-Western.

In the case of females of less than 10 years' length of residence, the Metropolitan Division contained 17,689, or about 45 per cent. of the total of 39,562, the corresponding numbers and percentages for the other divisions being: 15,041, or about 38 per cent. for the Central and Eastern; 6,593, or about 16½ per cent. for the South-Western; and 239, or somewhat more than ½ per cent. for the Northern and North-Western. The figures for the last five years, however, show that amongst the more recent female arrivals the proportion settling in the Central and Eastern Division is satisfactorily increasing, as for that period it differs but little from that in the case of the Metropolitan.

It is of interest to note that of those who have been resident in the State 20 years and upwards, the South-Western Division contained more than all the other Divisions taken together, slightly above 50 per cent. of the total being there recorded.

Sickness and Infirmity.

One of the heads of inquiry on the Census Schedule related to the number of persons who, at the date of the Census, were laid up or unable to follow their usual occupations owing to sickness or the result of accidents, and also the number who at that date were deaf and dumb or blind. The particulars furnished were as follows:—

Sickness and Infirmity.	Males.	Females.	Total.
Sickness	1,144	482	1,626
Accident	284	26	310
Deaf-mutism	20	10	30
Blindness	47	34	81
Total	1,495	552	2,047

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Tabulated according to the territorial divisions defined on page 288, particulars relative to sickness and infirmity are as follows:—

Particulars.	Metropolitan Division.		South-Western Division.		Central and Eastern Division.		Northern and North-Western Division.		Total.	
	Number.	Percentage on total population of division.	Number.	Percentage on total population of division.	Number.	Percentage on total population of division.	Number.	Percentage on total population of division.	Number.	Percentage on total population of State.
Sick	836	1·24	331	0·64	418	0·70	41	0·74	1,626	0·88
Accident	85	0·12	93	0·18	126	0·21	6	0·11	310	0·17
Deaf and Dumb	19	0·03	7	0·01	4	0·01	...	...	30	0·02
Blind	47	0·07	21	0·04	11	0·02	2	0·04	81	0·04
Total	987	1·46	452	0·87	559	0·94	49	0·89	2,047	1·11

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Amongst bread-winners, the class which contained the largest number of persons was that of Primary Producers, which embraces the occupations connected with the Agricultural, Pastoral, Timber, Mining, and other natural resources of the State. The aggregate for this class was 35,572, or about 38 per cent. of the total number of bread-winners, Mining and Quarrying, with 19,838, and Agricultural Pursuits, with 8,607, being the largest contributors.

The next in order of importance was the Industrial Class, with a total of 21,810, followed in order by the Commercial, with 11,803; Domestic, with 11,303; Transport and Communication, with 10,992, and Professional, with 7,067, while 324 were returned as being of independent means.

Although, unfortunately, variations in the system of classification prevent any extensive comparisons with the results of the earlier Censuses, it is yet possible to obtain approximately the number of males engaged at the dates of the several Censuses in the three great natural industries of the State, the agricultural, the pastoral, and the mineral. The following table gives these particulars for each Census, and also the percentage on the total male population in each case. Although copper and lead were discovered in the Champion Bay district in 1848, and a small export of lead is recorded as early as 1850, in no Census Report prior to that of 1859 is any special mention made of persons engaged in mining operations, the few so employed being probably included under some general head.

Date of Census.	Males engaged in					
	Agricultural Pursuits.		Pastoral Pursuits.		Mining.	
	Number.	Percentage on total males.	Number.	Percentage on total males.	Number.	Percentage on total males.
10th October, 1848 ...	776	27·54	145	5·15	*	
30th September, 1854	1,395	17·50	364	4·57	*	
31st December, 1859 ...	2,684	28·19	429	4·51	38	0·40
31st March, 1870 ...	3,053	19·86	889	5·78	64	0·42
3rd April, 1881 ...	3,235	18·96	1,280	7·50	102	0·60
5th April, 1891 ...	4,366	14·65	1,701	5·71	1,246	4·18
31st March, 1901 ...	8,322	7·37	1,983	1·76	19,436	17·22

* No figures available.

While the number of males engaged in each of the three industries specified has continuously increased from Census to Census, the percentages on the total male population have exhibited considerable fluctuations in the case of those connected with agricultural and pastoral pursuits. As regards males engaged in mining, a continuous increase has been experienced in the percentages as well as in the actual numbers. The maximum percentage in the case of agricultural pursuits was attained at the Census of 1859, a continuous decline being subsequently experienced;

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while the maximum percentage for pastoral pursuits was that of the 1881 Census. It is of interest to note that, taking these three industries together, the number of males employed therein at the dates of the last four Censuses has been a fairly constant percentage of the total male population, being 26 per cent. in 1870, 27 per cent. in 1881, 24½ per cent. in 1891, and 26½ per cent. in 1901.

The following table furnishes an interesting comparison of the numbers of the bread-winning and dependent males, and exhibits for each age-group the percentage of male dependents on total males, exclusive of those who failed to specify their occupations:—

Age-group.	Males whose occupations were specified.			
	Bread-winners.	Dependents.	Total.	Percentage of dependents on total for age-group.
Under 5 years	...	10,441	10,441	100·00
5 years and under 15 ...	1,340	15,063	16,403	91·83
15 " " 20 ...	6,620	462	7,082	6·52
20 " " 25 ...	11,676	129	11,805	1·09
25 " " 45 ...	51,191	539	51,730	1·04
45 " " 65 ...	12,420	285	12,705	2·24
65 years and upwards ...	1,926	308	2,234	13·79
Adults of unspecified age	209	2	211	0·95
Total	85,382	27,229	112,611	24·18

The age-group for which the number of dependents was smallest was that of "20 years and under 25," while the group which showed the smallest percentage of dependents on total was that of "25 years and under 45."

Similar particulars relative to females are as follows:—

Age-group.	Females whose occupations were specified.			
	Bread-winners.	Dependents.	Total.	Percentage of dependents on total for age-group.
Under 5 years	...	10,234	10,234	100·00
5 years and under 15 ...	496	15,695	16,191	96·94
15 " " 20 ...	2,738	3,111	5,849	53·19
20 " " 25 ..	2,892	4,317	7,209	59·88
25 " " 45 ...	5,731	18,858	24,589	76·69
45 " " 65 ...	1,401	4,505	5,906	76·28
65 years and upwards ...	217	839	1,056	79·45
Adults of Unspecified Age	14	12	26	46·15
Total	13,489	57,571	71,060	81·02

It will be seen that about 47 per cent. of the females between 15 and 20, and about 40 per cent. of those between 20 and 25 were

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bread-winners, while of those aged "25 and upwards" somewhat more than 23 per cent. belonged to the bread-winning section.

The following table furnishes a comparison of the numbers of male bread-winners and dependents in each of the divisions of the State defined on page 288:—

Division.	Males whose occupations were specified.			
	Bread-winners.	Dependents.	Total.	Percentage of Dependents on Total for Division.
Metropolitan	25,626	11,398	37,024	30·79
South-Western	20,552	9,390	29,942	31·36
Central and Eastern	34,823	6,097	40,920	14·90
Northern and North-Western	4,381	344	4,725	7·28
Total	85,382	27,229	112,611	24·18

Similar information relative to female bread-winners and dependents is as follows:—

Division.	Females whose occupations were specified.			
	Bread-winners.	Dependents.	Total.	Percentage of Dependents on Total for Division.
Metropolitan	6,400	23,805	30,205	78·81
South-Western	3,018	18,653	21,671	86·07
Central and Eastern	3,914	14,487	18,401	78·73
Northern and North-Western	157	626	783	79·95
Total	13,489	57,571	71,060	81·02

Chinese.

With a view to ascertaining the number of persons of Chinese race in the community, instructions were given in connection with the Census enumeration that all Chinese should on the Schedules be marked C., and all half-caste Chinese C.H.C., whether born in China or not.

The result of the investigation was as follows:—

Particulars.	Males.	Females.	Total.
Chinese—			
Full-blooded	1,503	18	1,521
Half-caste	23	25	48
Total	1,526	43	1,569

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Of the 1,521 full-blooded Chinese, 1,465 were born in China, 44 in other Asiatic countries, and 11 in Australasia, while in one case the birthplace was unspecified. Of the 48 half-castes, 43 were born in Australasia, three in China, and two in other Asiatic countries.

The number of Chinese in each of the four territorial divisions of the State, defined on page 288, was as follows:—

Division.	Number of Chinese enumerated 31st March, 1901.								
	Full-blooded.			Half-caste.			Total.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Metropolitan ...	682	8	690	8	17	25	690	25	715
South-Western ...	401	5	406	10	7	17	411	12	423
Central and Eastern	12	...	12	1	...	1	13	...	13
Northern and North-Western ...	408	5	413	4	1	5	412	6	418
Total ...	1,503	18	1,521	23	25	48	1,526	43	1,569

It will be noticed from the above table that the exclusion of Chinese from the goldfields of the State is very complete, since only 13 Chinese were recorded in the whole of the territory comprised in the Central and Eastern Division; and these, again, were all living in districts in which pastoral pursuits were carried on as well as gold-mining, the Magisterial Districts concerned being Murchison (7), Yalgoo (5), and Peak Hill (1).

Aboriginals.

As mentioned on page 306, particulars relating to full-blooded aboriginals have been excluded from all the tables respecting the general population, given on the foregoing pages.

Instructions were given to the Census Sub-enumerators to count all civilised or semi-civilised aboriginals, that is, all who were either in the employ of whites or else were living in close proximity to the settlements of whites. They were at the same time instructed that no attempt need be made to enumerate those who were living in a wild state. The numbers recorded were as follows:—

Particulars.	Males.	Females.	Total.
Aboriginals—			
Full-blooded	2,933	2,328	5,261
Half-caste	492	459	951
Total	3,425	2,787	6,212

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Of the 5,261 full-blooded aboriginals shown above, 5,158 were born in Western Australia, 77 in South Australia, 24 in Queensland, and two in New South Wales. Of the 951 half-castes, 939 were born in Western Australia, nine in South Australia, two in Victoria, and one in New South Wales.

The number of aboriginals enumerated in each of the four territorial divisions defined on page 288, was as follows:—

Division.	Number of Aboriginals enumerated 31st March, 1901.								
	Full-blooded.			Half-caste.			Total.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Metropolitan ...	70	19	89	9	12	21	79	31	110
South-Western ...	470	317	787	330	302	632	800	619	1,419
Central and Eastern	432	335	767	38	21	59	470	356	826
Northern and North-Western ...	1,961	1,657	3,618	115	124	239	2,076	1,781	3,857
Total ...	2,933	2,328	5,261	492	459	951	3,425	2,787	6,212

Of the total of 5,261 full-blooded aboriginals enumerated, no fewer than 3,618, or nearly 70 per cent., were living in the Northern and North-Western Division. The numbers enumerated in the South-Western Division and the Central and Eastern Division differed but slightly from each other, being 787 in the case of the former, and 767 in that of the latter, while in the Metropolitan Division only 89 were recorded.

The half-caste aboriginals were most numerous in the South-West, 632 out of the total of 951, or about 66 per cent., being resident in that division. Next in order came the Northern and North-Western with 239, then the Central and Eastern with 59, and lastly the Metropolitan with 21.

It is interesting to note that one of the direct results of their more immediate contact with civilisation is that out of the 1,419 aboriginals enumerated in the South-Western Division, no fewer than 632, or about 45 per cent., were half-caste, the corresponding percentages in the case of the other divisions being: Metropolitan 19 per cent., Central and Eastern 7 per cent., Northern and North-Western 6 per cent.

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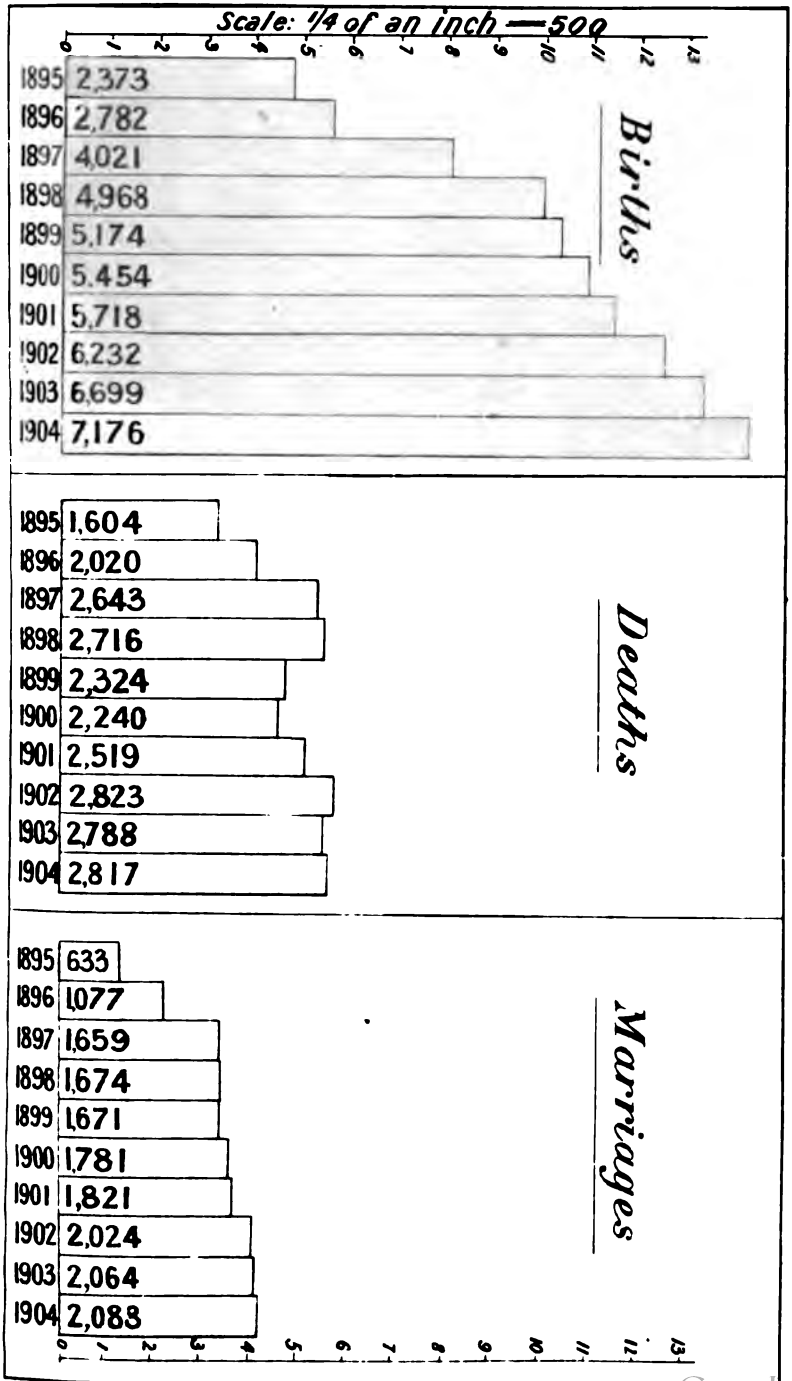

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5.—VITAL STATISTICS.

A.—Births.

Western Australian Birth Rates.

An interesting fact noticeable in all birth statistics, and one which, up to the present time, cannot be said to have been in any way satisfactorily explained, is the preponderance of male over female births. Several ingenious theories have been advanced to account for it, but the difficulty of practically testing any of them has, up to the present at all events, prevented the solution of the problem.

The total number of births (exclusive of still-births) registered in Western Australia during 1903 was 6,699, consisting of 3,433 boys and 3,266 girls—an increase of 467 on that of the preceding year. The following table shows, for each of the ten years 1894 to 1903, the number registered; the birth-rate per 1,000 of the mean population, or "crude" birth-rate; and also the number of male births to each 100 females:—

Year.	Total Number of Births registered (exclusive of still-births).			Per 1,000 of mean population.	Number of males to each 100 females.
	Males.	Females.	Total.		
1894	1,109	1,014	2,123	28·29	109·37
1895	1,192	1,181	2,373	26·32	100·93
1896	1,485	1,347	2,782	22·67	106·53
1897	2,036	1,985	4,021	25·85	102·57
1898	2,574	2,394	4,968	29·40	107·52
1899	2,636	2,538	5,174	30·70	103·86
1900	2,789	2,665	5,454	30·83	104·65
1901	2,946	2,772	5,718	30·36	106·28
1902	3,241	2,991	6,232	30·29	108·36
1903	3,433	3,266	6,699	30·27	105·11
Total	23,391	22,153	45,544	28·95	105·59

During the first three years of the decennium under review, the birth-rate declined so rapidly that for the year 1896 it stood at the phenomenally low level of 22·67 per 1,000 of mean population. In the four succeeding years a marked increase took place; the maximum for the ten years being attained in 1900, with a rate of 30·83, while for the last three years of the period a slight decline was experienced, resulting in a fall to 30·27 for 1903. It will be seen that for the last five years the birth-rate has varied but slightly, the average for that period being 30·47. The rapid fall

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and subsequent rise in the birth-rate between the years 1894 and 1900 were, of course, due to the variations in the constitution of the population during these years, brought about by migration. The large influx of males during the earlier years increased the mean population on which the rates were based, without exerting a corresponding influence on the number of births. In the later years, the diminution in the stream of male immigration, combined with the advent of the wives of married men and the prospective wives of those who were unmarried, had the effect of causing the rate to rise again.

It will be seen from the above table that, for each of the ten years under review, the male births exceeded the female, the excess varying between the limits of 0·93 per cent. in 1895 and 9·37 per cent. in 1894, and averaging for the whole period about 5½ per cent.

Particulars relative to the birth-rate of this State from 1841 to the present time are as follows :—

Period.	Mean Population for period.	Births registered during period.	
		Number.	Number per annum per 1,000 of mean Population.
1841–45	3,567	669	37·51
1846–50	4,865	843	34·66
1851–55	9,244	1,405	30·40
1856–60	13,964	2,431	34·82
1861–65	17,786	3,263	36·69
1866–70	22,220	3,570	32·13
1871–75	25,789	4,033	31·28
1876–80	27,971	4,611	32·97
1881–85	31,508	5,442	34·54
1886–90	41,729	7,696	36·89
1891–95	66,750	10,242	30·69
1896–1900	158,538	22,399	28·26
1901–1903	205,115	18,649	30·31
1841–1903	43,413	85,253	31·17

The number of births per 1,000 of the mean population, or what is known as the "crude" birth-rate, is that which is generally given in statistical publications as the birth-rate of any particular community. When referring to the same place for periods not far apart, and under conditions which have not varied greatly in the time elapsing between such periods, these rates are no doubt useful and comparable, though this is hardly to be expected when the rates of different countries, or of the same country at periods far apart or under widely differing conditions, are compared with a

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view to ascertaining the relative fertility of the population. In such cases it is evident that allowance should be made for the distribution of population according to age, sex, and conjugal condition. The most accurate method of exhibiting the birth-rate is that based upon the number of women in the population of child-bearing age, that is between the ages of 15 and 50, the legitimate birth-rate being based upon the number of married, and the illegitimate rate upon the number of unmarried women. The difficulty of obtaining statistics of the ages and conjugal condition of the population for intercensal years prevents this method from coming into general use, but with a quinquennial census, material would be available to enable fairly reliable estimates of these particulars to be made, and even with a decennial census approximate results may be obtained.

The following table furnishes a statement of the legitimate birth-rates of this State for the 10 years, 1894 to 1903; these rates being based on the number of married women between the ages of 15 and 50 as estimated from the results of the Censuses of 1891 and 1901:—

Year.	Estimated married female mean population between the ages of 15 and 50.	No. of legitimate births.	No. of legitimate births per annum per 1,000 of estimated married female mean population between the ages of 15 and 50.
1894 ...	7,749	2,024	261
1895 ...	9,297	2,267	244
1896 ...	12,282	2,626	214
1897 ...	16,538	3,809	230
1898 ...	19,482	4,720	242
1899 ...	20,639	4,920	238
1900 ...	22,610	5,191	230
1901 ...	24,912	5,496	221
1902 ...	27,317	5,985	219
1903 ...	29,898	6,384	214
Ten years, 1894-1903	19,072	43,422	228

It will be seen that, during the 10 years, a decline in the birth-rate has been in evidence in this State, the number of births per 1,000 married females between the ages of 15 and 50 having fallen continuously from 242 in 1898 to 214 in 1903, the lowest record for the ten years. The rapid decline and subsequent rise between 1894 and 1898 were due in large measure to the unsettled conditions of the population of the State, brought about by the extensive migration during that period, but it will be noticed that, taking the period as a whole, a decline was experienced from 261 in 1894 to 242 in 1898.

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A similar estimate of the illegitimate birth-rate for the 10 years is as follows:—

Year.	Estimated unmarried female mean population between the ages of 15 and 50.	No. of illegitimate births.	No. of illegitimate births per annum per 1,000 of estimated unmarried female mean population between the ages of 15 and 50.
1894 ...	6,077	99	16
1895 ...	7,087	106	15
1896 ...	9,105	156	17
1897 ...	11,929	212	18
1898 ...	13,682	248	18
1899 ...	14,112	254	18
1900 ...	15,066	263	17
1901 ...	16,143	222	14
1902 ...	17,701	247	14
1903 ...	19,374	315	16
Ten years, 1894-1903	13,028	2,122	16

During the ten years the illegitimate birth-rate has fluctuated somewhat, the number per 1,000 unmarried women of childbearing age varying between the limits of 14 and 18. The average rate for the ten years, viz., 16, is identical with the rates for 1894 and 1903, the first and last years of the period.

On page 357 will be seen a table giving, for the three years 1901 to 1903, legitimate and illegitimate rates at various ages, based on the results of the Census of 31st March, 1901.

Births in Seasons.

The following table shows the number of births registered quarterly in Western Australia for each of the ten years 1894 to 1903:—

Year.	Number of Births registered in the Quarter ended on the last day of—				Number of Births registered during Year.
	March.	June.	September.	December.	
1894	459	533	574	557	2,123
1895	497	601	681	594	2,373
1896	571	695	761	755	2,782
1897	854	1,019	1,117	1,031	4,021
1898	1,151	1,157	1,392	1,268	4,968
1899	1,227	1,308	1,386	1,253	5,174
1900	1,351	1,402	1,339	1,362	5,454
1901	1,371	1,455	1,538	1,354	5,718
1902	1,407	1,607	1,653	1,565	6,232
1903	1,530	1,750	1,829	1,590	6,699
Total	10,418	11,527	12,270	11,329	45,544

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From this it will be seen that births are most numerous in the September quarter, and least frequent in that ending 31st March.

The following table shows the average number of births registered in each month during the six years 1898 to 1903:—

Month	Average number of Births registered (1898 to 1903.)				
	Monthly Average.			Daily Average.	Number of Males to each 100 Females.
	Males.	Females.	Total.	Total.	
January	233	221	454	14·64	105·43
February	221	201	422	15·07	109·95
March	232	232	464	14·97	100·00
April	243	234	477	15·90	103·85
May	246	240	486	15·68	102·50
June	248	235	483	16·10	105·53
July	275	249	524	16·90	110·44
August	254	247	501	16·16	102·83
September	252	246	498	16·60	102·44
October . ..	257	238	495	15·97	107·98
November	244	219	463	15·43	111·42
December	232	209	441	14·23	111·00
Total	2,937	2,771	5,708	15·64	105·99

It will be seen from the above table that July is the month in which births are most numerous, while August and September come next in numerical order. As regards the daily average, the number increases with fair regularity from 14·64 for January to 16·90 for July, and then declines gradually to 14·23 for December.

The number of male births to each 100 females will be seen to fluctuate considerably from month to month, but it is worthy of notice that for the period of five months from October to February inclusive, it is consistently high, and averages for the period 109·10, while for the seven months, from March to September, inclusive, the excess of male births only reaches as high as 4 per cent. in two instances, viz., in June and July, the average number of males to each 100 females for the period being 103·98.

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Metropolitan and Extra-Metropolitan Birth-rates.

The metropolitan and extra-metropolitan birth-rates for each of the six years 1898 to 1903 are as follows:—

Year.	Births registered.					
	Perth and Suburbs.		Remainder of State.		The whole State.	
	Number.	Per 1,000 of mean population.	Number.	Per 1,000 of mean population.	Number.	Per 1,000 of mean population.
1898	1,339	37·42	3,629	27·24	4,968	29·40
1899	1,266	36·58	3,908	29·18	5,174	30·70
1900	1,240	35·02	4,214	29·77	5,454	30·83
1901	1,304	35·10	4,414	29·20	5,718	30·36
1902	1,449	35·48	4,783	29·00	6,232	30·29
1903	1,666	36·86	5,033	28·58	6,699	30·27
Six years 1898-1903	8,264	36·10	25,981	28·84	34,245	30·31

Throughout the period under review the birth-rate of Perth and suburbs has exceeded that of the remainder of the State, the excess per 1,000 of the mean population varying from 10·18 in 1898 to 5·25 in 1900, and averaging 7·26 for the six years.

The excess of the metropolitan over the extra-metropolitan birth-rate is due to various causes, amongst which may be mentioned the age and sex constitution of the respective populations, and the fact that owing to the existence in Perth of an institution for lying-in cases, and to the greater facilities for obtaining medical and other attendance in the city than in some of the outlying districts, many mothers migrate to the metropolis prior to confinement.

Territorial Divisions.

The following table furnishes, for each of the territorial divisions defined on page 288, the number of births registered during the years 1901 to 1903:—

Division.	Births (exclusive of Still-births).								
	1901.			1902.			1903.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Metropolitan... ...	1,161	1,129	2,290	1,287	1,193	2,480	1,471	1,368	2,839
South-Western ...	869	824	1,693	963	868	1,831	947	922	1,869
Central and Eastern	875	793	1,668	963	904	1,867	978	955	1,933
Northern and North-Western	41	26	67	28	26	54	37	21	58
The whole State	2,946	2,772	5,718	3,241	2,991	6,232	3,433	3,266	6,699

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The number of births per 1,000 of mean population of each of these divisions, and the number of male births to each 100 female births, are as follows :—

Division.	Number of births per 1,000 of mean population.			Number of male births to each 100 female births.		
	1901.	1902.	1903.	1901.	1902.	1903.
Metropolitan	33·19	32·89	34·94	102·83	107·88	107·53
South-Western	32·00	31·67	30·03	105·46	110·94	102·71
Central and Eastern ...	27·44	28·13	27·14	110·34	106·53	102·41
Northern and North-Western	11·87	8·77	8·82	157·69	107·69	176·19
The whole State ...	30·36	30·29	30·27	106·28	108·36	105·11

Twins and Triplets.

During the seven years, 1897 to 1903, 481 instances of twins and two of triplets were registered in Western Australia. In each of the cases of triplets all three of the children were born alive; but out of the 481 cases of twins no fewer than 46 of the children were still-born, 28 being males and 18 females. The following statement gives the number of cases of twins and triplets which occurred in each of the seven years, and the percentage of the mothers who bore more than one child at a birth on the total number giving birth to children during each year :—

Year.	Number of cases.	Number of Live-births.			Percentage on total mothers giving birth to children during year.
		Males.	Females.	Total.	
1897	46	50	38	88	1·16
1898	68	67	64	131	1·39
1899	* 68	66	66	132	1·33
1900	64	72	51	123	1·19
1901	73	69	71	140	1·29
1902	78	82	67	149	1·27
1903	86	88	71	159	1·30
Seven years, 1897-1903	483	494	428	922	1·28

* Including two cases of triplets, comprising four males and two females.

It is of interest to note that during the seven years the number of cases of multiple births has borne a fairly constant ratio to the total number of mothers giving birth to children, the limits of variation for the period being 1·16 per cent. for 1897 and 1·39 per cent. for 1898. On the average, one confinement in every eighty results in a multiple birth.

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Still-births.

In dealing with statistics of births and deaths, care must be taken to ascertain the manner in which still-births have been treated in their compilation. In England, as is also the case in most of the British possessions, including Western Australia, still-births are excluded from all ordinary returns of births and deaths, whereas on the Continent of Europe they are in some cases included in both. The registration of still-births is not practised in any of the Australasian States except Western Australia, where they are registered both as births and also as deaths, but, as before stated, are excluded from all returns of births and deaths, except those specially dealing with still-births.

The following table shows the number of still-births registered in each of the seven years, 1897 to 1903; the percentage of the total number of births (including still) in each case; and also the number of males to each 100 females:—

Year.	Still-births registered.				Number of males to each 100 females.
	Males.	Females.	Total.	Percentage on total births (including still).	
	No.	No.	No.	%	No.
1897	55	41	96	2·33	134·15
1898	74	54	128	2·51	137·04
1899	82	77	159	2·98	106·49
1900	97	57	154	2·75	170·18
1901	102	72	174	2·95	141·67
1902	97	72	169	2·64	134·72
1903	106	96	202	2·93	110·42
Seven years, 1897-1903	613	469	1,082	2·75	130·70

It will be seen that during the seven years under review, exactly 2¾ per cent. of the total number of births were still-born cases, the percentage varying from year to year within fairly narrow limits, and attaining its maximum in 1899 with 2·98 per cent., and its minimum in 1897 with 2·33 per cent.

It will also be noticed that the preponderance of males, which has already been commented on in the case of live-births, is very much more marked amongst the still-born, the males exceeding the females for the seven years by more than 30 per cent.

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Illegitimacy.

In the following table is shown the number of illegitimate births registered in each of the ten years, 1894 to 1903; the percentage on the total number of births in each case; and the number of males to each 100 females:—

Year.	Males.	Females.	Total.	Percentage on total births.	Number of males to each 100 females.
1894	48	51	99	4·66	94·12
1895	57	49	106	4·47	116·33
1896	60	96	156	5·61	62·50
1897	114	98	212	5·27	116·33
1898	137	111	248	4·99	123·42
1899	124	130	254	4·91	95·38
1900	143	120	263	4·82	119·17
1901	111	111	222	3·88	100·00
1902	130	117	247	3·96	111·11
1903	168	147	315	4·70	114·29
Ten years, 1894–1903	1,092	1,030	2,122	4·60	106·02

The percentage of illegitimate on total births has varied during the ten years between the limits of 3·88 for 1901 and 5·61 for 1896. In three out of the ten years the number of female births exceeded the number of males, while in one case the numbers were identical. For the whole period the male illegitimate births exceeded the female by slightly more than 6 per cent., as compared with about 5½ per cent for all births.

It is possible that the number of illegitimate births is somewhat understated in all birth returns, as in such cases there is doubtless often a natural diffidence about proclaiming the fact of illegitimacy; and it is also probable that the bulk of unregistered births would be found to be illegitimate.

The usual method of presenting rates of illegitimacy is that which has been here adopted, viz., as a percentage on the total number of births registered; but it must be admitted that this method hardly gives a correct view of the relative increase or decrease of illegitimacy, since the rate so obtained depends on the fluctuations in the number of legitimate births. If, for instance, the true rate of illegitimacy remained uniform, while a fall was experienced in the legitimate rate, the use of the ordinary method would result in an increased rate of illegitimacy being shown. As before mentioned, the most accurate method of ascertaining the illegitimate rate is that of basing it upon the number of unmarried women of child-bearing age, as has been done on page 346. A further table, giving particulars for various age groups, will be found on page 357.

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In the following table the States of the Commonwealth of Australia and the Colony of New Zealand have been arranged in descending order of the rate of illegitimacy for 1903:—

State or Colony.	Illegitimate Births.	Percentage on total Births.
Queensland	857	6·79
New South Wales	2,413	6·71
Victoria	1,695	5·73
Tasmania	285	5·61
Western Australia	315	4·70
New Zealand	994	4·55
South Australia	354	4·16
Total Australasia ...	6,913	5·75

It is interesting to note that, in the case of illegitimate births, the percentage of still-born is somewhat higher than amongst those that are legitimate, although, as far as the experience of this State extends, the difference is not so marked as might be expected. Thus, for the seven years, 1897 to 1903, the figures are as follows:—

Year.	Legitimate Births.				Illegitimate Births.			
	Live-born.	Still-born.	Total.	Percentage of Still-born on total.	Live-born.	Still-born.	Total.	Percentage of Still-born on total.
1897	3,809	93	3,902	2·38	212	3	215	1·40
1898	4,720	117	4,837	2·42	248	11	259	4·25
1899	4,920	148	5,068	2·92	254	11	265	4·15
1900	5,191	144	5,335	2·70	263	10	273	3·66
1901	5,496	165	5,661	2·91	222	9	231	3·90
1902	5,985	157	6,142	2·56	247	12	259	4·63
1903	6,384	189	6,573	2·88	315	13	328	3·98
Seven years, 1897-1903	36,505	1,013	37,518	2·70	1,761	69	1,830	3·77

Ante-nuptial Conception.

During the year 1903, out of a total of 6,699 births registered, 1,820 (or about 27 per cent.) were legitimate first-births; and in 477

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of these cases the birth of the child occurred within nine months of the date of marriage. The following table gives particulars for 1903, and also for the seven years, 1897-1903, classified according to the period which elapsed between the date of marriage and that of the birth of the first child:—

Period elapsing from date of marriage to birth of first child.	Number of legitimate first-births.	
	1903.	Seven years, 1897-1903.
One month and under	28	98
Over 1 month but not exceeding 2 months	23	141
" 2 months " " 3 "	31	204
" 3 " " " 4 "	45	253
" 4 " " " 5 "	57	270
" 5 " " " 6 "	67	390
" 6 " " " 7 "	74	444
" 7 " " " 8 "	71	419
" 8 " " " 9 "	81	634
" 9 " " " 10 "	255	1,541
" 10 " " " 11 "	181	1,144
" 11 " " " 12 "	133	872
" 12 " " " 13 "	88	638
" 13 " " " 14 "	79	451
" 14 " " " 15 "	64	405
" 15 " " " 16 "	46	310
" 16 " " " 17 "	46	275
" 17 " " " 18 "	33	246
" 18 " " " 19 "	35	192
" 19 " " " 20 "	23	194
" 20 " " " 21 "	32	170
" 21 " " " 22 "	25	126
" 22 " " " 23 "	21	126
" 23 " " " 2 years	20	122
Over 2 years but not exceeding 3 "	129	782
" 3 " " " 4 "	51	316
" 4 " " " 5 "	21	138
" 5 " " " 6 "	11	80
" 6 " " " 7 "	20	57
" 7 " " " 8 "	9	37
" 8 " " " 9 "	2	21
" 9 " " " 10 "	2	17
" 10 " " " 11 "	6	16
" 11 " " " 12 "	4	17
" 12 " " " 13 "	..	7
" 13 " " " 14 "	2	5
" 14 " " " 15 "	1	3
" 15 " " " 16 "	2	6
" 16 " " " 17 "	1	5
" 17 " " " 18 "	..	2
" 18 " " " 19 "	..	..
" 19 " " " 20 "	..	1
Not specified	1	8
Total	1,820	11,183

Assuming that all illegitimate births are first-births, and that all births occurring within nine months of the date of marriage are

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the result of ante-nuptial conception, the following particulars for the seven years, 1897-1903, are obtained:—

Particulars.	Number.	Percentage on total first-births.
First-births of post-nuptial conception ..	8,330	64·43
First-births of ante-nuptial conception ..	2,853	22·07
First-births of illegitimate parentage ..	1,745	13·50
Total, first-births ..	12,928	100·00

It may be mentioned that in speaking here of first-births in connection with ante-nuptial conception and illegitimate parentage, cases of twins are in each instance treated as one first-birth only.

The following table furnishes details for the seven years, 1897-1903, respecting the proportion of cases in which illicit conception has been succeeded by marriage prior to the birth of the child, illegitimate births, and those occurring within nine months of marriage, being grouped together as cases of illicit conception:—

Year.	Number of mothers giving birth to illegitimate children.	Number of mothers giving birth to children within nine months of marriage.	Total cases of illicit conception.	Percentage of cases within nine months of marriage on total cases of illicit conception.
				%
1897	210	355	565	62·83
1898	244	369	613	60·20
1899	252	385	637	60·44
1900	261	411	672	61·16
1901	218	413	631	65·45
1902	247	443	690	64·20
1903	313	477	790	60·38
Seven years, 1897–1903	1,745	2,853	4,598	62·05

During the period the percentage has varied within fairly narrow limits, attaining a maximum of 65·45 in 1901 and a minimum of 60·20 in 1898, and giving an average of 62·05. It thus appears that in this State somewhat less than two-thirds of the cases of illicit conception are followed by marriage prior to the birth of the child.

It will be seen, however, from the attached table that the percentage varies with the age of the mother, and shows a marked tendency to decrease as her age increases. Particulars concerning

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the ages of mothers in cases of ante-nuptial conception are available for this State for the year 1903 only :—

Age of mother.	Number of mothers giving birth to illegitimate children during 1903.	Number of mothers giving birth to children within nine months of marriage during 1903.	Total cases of illicit conception recorded during 1903.	Percentage of cases within nine months of marriage on total cases of illicit conception.
				%
Under 20 years ..	57	96	153	62·75
20 and under 25 ..	112	233	345	67·54
25 " " 30 ..	70	91	161	56·52
30 " " 35 ..	51	44	95	46·32
35 " " 40 ..	17	11	28	39·29
40 " 45 ..	6	2	8	25·00
A ges ..	313	477	790	60·38

On the basis of the experience of this State for the year 1903 it would appear that when the mother is under 25 years of age two-thirds of the cases of illicit conception are followed by marriage prior to the birth of the child, but that when the mother is above that age not more than one-half of the cases are so followed.

Fecundity within two years of Marriage.

By means of a comparison of the number of marriages occurring in any calendar year with the number of first-births recorded in the succeeding calendar year as having occurred within two years after marriage, it is possible to obtain a rough approximation to the proportion of marriages which are succeeded by the birth of a child within two years. This has been done in the following table for the years 1896 to 1902 :—

Year.	Number of marriages during the year.	Number of first-births within two years after marriage recorded in succeeding year.	Percentage of cases in which marriage was succeeded by a birth within two years on total marriages for year.
			%
1896 ..	1,077	1,072	99
1897 ..	1,659	1,415	85
1898 ..	1,674	1,309	78
1899 ..	1,671	1,335	80
1900 ..	1,781	1,434	81
1901 ..	1,821	1,549	85
1902 ..	2,024	1,559	77
Total ..	11,707	9,673	83

The experience of this State for the seven years, 1896 to 1902, thus indicates that in the case of about 83 per cent. of the marriages performed, the birth of the first child occurred within two years of the date of the marriage. It may be mentioned that in the fore-

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going table each case of twins that occurred has been included as one first-birth only.

Ages of Parents.

The ages of the mothers of children whose births were registered during 1903 were as follows:—

Ages.	Mothers of legitimate children.	Mothers of illegitimate children.	Total Mothers.
14	..	1	1
15	..	1	1
16	4	3	7
17	26	9	35
18	45	21	66
19	105	22	127
20	168	28	196
21 and under 25	1,197	84	1,281
25 " " 30	1,934	70	2,004
30 " " 35	1,614	51	1,665
35 " " 40	923	17	940
40 " " 45	273	6	279
45 " " 50	23	..	23
Not stated	1	..	1
Total	6,313	313	6,626

Out of 313 mothers of illegitimate children, no fewer than 85 (or about 27 per cent.) were under the age of 21.

The ages of the fathers of illegitimate children are not supplied on the birth certificates. The ages in the case of legitimate births for 1903 were as follows:—

Ages.	Fathers of legitimate children.
17	1
18	1
19	2
20	13
21 years and under 25	382
25 " " 30	1,470
30 " " 35	1,867
35 " " 40	1,411
40 " " 45	754
45 " " 50	283
50 " " 55	78
55 " " 60	33
60 " " 65	12
65 " " 70	3
70 " " 75	1
80 " " 85	1
Not stated	1
Total	6,313

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The following table exhibits, for certain groups, the relative ages of the fathers and mothers of children whose births were registered in 1903:—

Ages.		Ages of Mothers. Under 20.	20 and under 40.	40 and under 50.	Not stated.	Total Fathers.
Ages of Fathers.	Under 20	3	1	..	..	4
	20 and under 40	173	4,926	43	1	5,143
	40 and under 50	4	827	206	..	1,037
	50 and upwards	..	81	47	..	128
	Not stated	..	1	..	..	1
Mothers of legitimate children		180	5,836	296	1	6,313
Mothers of illegitimate children		57	250	6	..	313
Total Mothers		237	6,086	302	1	6,626

Out of the total of 6,313 married couples to whom children were born in this State during 1903, there were 4,926 cases (or 78 per cent.) in which both father and mother were between the ages of 20 and 40, while in 827 (or about 12½ per cent. of the total) the father was between 40 and 50, and the mother between 20 and 40. The greatest disparity between the ages of the parents occurred in the case of a child whose father was over 80, and whose mother was between 30 and 35. In three instances the parents were extremely juvenile, both being under 20 years of age.

The following table furnishes for the years 1901 to 1903 particulars concerning the number of mothers giving birth to legitimate children per 1,000 married women in various age-groups, and also the number giving birth to illegitimate children per 1,000 unmarried women in the same groups. Persons whose ages or conjugal condition were unspecified on the Census returns have, for the purposes of this table, been distributed proportionately amongst those specified, a similar course being followed in the case of mothers whose ages were not stated on the registration returns. In the computation of these birth-rates the assumption has been made that, as regards age and conjugal condition, the female mean population for the years under review was distributed in the same proportion as the population enumerated on 31st March, 1901:—

Age Group.	Number of mothers giving birth to legitimate children per 1,000 of married female mean population in each age-group			Number of mothers giving birth to illegitimate children per 1,000 of unmarried female mean population in each age-group.		
	1901.	1902.	1903.	1901.	1902.	1903.
15 years and under 20 ..	439	466	424	8	10	8
20 " " 25 ..	363	374	359	17	18	22
25 " " 30 ..	280	284	265	18	15	21
30 " " 35 ..	229	216	220	22	23	30
35 " " 40 ..	170	163	169	13	13	16
40 " " 45 ..	80	79	79	3	9	8
45 " " 50 ..	10	16	11	..	..	..
15 years and under 50 ..	218	217	211	14	14	16

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It will be seen that the proportion of married women giving birth to children declines continuously as the age of the mother increases, while the proportion of unmarried women giving birth to children increases with the age of the mother as far as the group "30 years and under 35," and then decreases.

The slight difference noticeable between the rates given here and those shown on page 345 is due to the fact that the present table deals with the number of mothers giving birth to children, while that on page 345, which relates to the number of children born, includes each case of live-born twins as two births.

Birthplaces of Parents.

The following summary furnishes particulars concerning the relative birthplaces of the fathers and mothers of children whose births were registered during 1903:—

Birthplaces of Fathers.	Birthplaces of Mothers.						Total Fathers.
	Australasia.	United Kingdom	Other British Possessions.	European Foreign Countries.	Other Foreign Countries.	At Sea and not stated.	
Australasia	3,817	477	9	15	9	14	4,341
United Kingdom	1,085	570	19	10	4	3	1,641
Other British Possessions	33	9	3	1	1	...	47
European Foreign Countries	110	37	...	55	1	...	203
Other Foreign Countries	30	8	1	3	15	...	57
At Sea and not stated	18	6	...	...	...	...	24
Mothers of legitimate children	5,043	1,107	32	84	30	17	6,313
Mothers of illegitimate children	252	50	1	5	4	1	313
Total Mothers	5,295	1,157	33	89	34	18	6,626

Of the total of 6,313 mothers of legitimate children, 5,043 (or about 80 per cent.) were of Australasian birth, while 1,107 (or about 17½ per cent.) hailed from the United Kingdom. In the case of illegitimate births the corresponding percentages were 80 and 16.

Of the fathers of legitimate children, 4,341 (or somewhat less than 69 per cent.) were Australian born, 1,641 (or 26 per cent.) were from the United Kingdom, and 203 (or rather more than 3 per cent.) were natives of European foreign countries.

In 3,817 (or rather more than 60 per cent.) of the cases, both parents were of Australasian birth, while in 5,899 instances (or about 93 per cent. of the total) both parents had been born in either Australasia or the United Kingdom.

Australasian Birth-rates.

From the following table, in which the States of the Commonwealth of Australia and the colony of New Zealand have been arranged in order of the "crude" birth-rates for 1903, it will be

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seen that Western Australia, with 30·27, easily heads the list; the next in order being Tasmania, with 28·61, while South Australia, with 23·24, is the lowest :—

State or Colony.	Births, 1903 (exclusive of stillbirths).	
	Number.	Per 1,000 of mean population.
1.—Western Australia ...	6,699	30·27
2.—Tasmania	5,080	28·61
3.—New Zealand	21,829	26·61
4.—New South Wales... ...	35,966	25·28
5.—Queensland	12,621	24·62
6.—Victoria	29,569	24·46
7.—South Australia	8,508	23·24
Total, Australasia ...	120,272	25·43

European Birth-rates.

The following table furnishes, for some of the principal European countries, the number of births per 1,000 of mean population for the year 1902 :—

Country.	Number of Births (exclusive of still-births) per 1,000 of mean population for 1902.
1.—Hungary	38·8
2.—Austria	37·0
3.—Spain	35·5
4.—Germany	35·1
5.—Italy	33·3
6.—Holland	31·8
7.—Denmark	29·4
8.—Scotland	29·2
9.—Norway	29·1
10.—Switzerland	28·7
11.—England and Wales	28·5
12.—Belgium	28·4
13.—Sweden	26·3
14.—Ireland	23·0
15.—France	21·7

From the above table, which has been compiled from the annual report of the Registrar General of England for 1902, it will be seen that six of the European countries enumerated had, for the year 1902, a higher "crude" birth-rate than Western Australia (whose rate for that year was 30·29), while nine experienced a lower rate, this State's position in the above list being between those of Holland and Denmark.

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B.—Deaths.

Crude Death-rates.

Of the three divisions of Vital Statistics, that dealing with Deaths is probably the most important, as showing to a certain extent the effect on the population of the conditions under which they live, and thus suggesting directions in which these conditions may possibly be ameliorated. Of course, conclusions which might legitimately be deduced from mortality statistics in settled communities would be quite untenable in the case of a new country like Western Australia, where the dangers and privations incident to the lives of pioneers, gold prospectors, and miners naturally tend to bring about an exceptionally large number of deaths.

The following table shows the number of deaths registered in Western Australia during each of the ten years, 1894 to 1903, and the death-rates per 1,000 of mean population for males, females, and persons respectively:—

Year.	Deaths Registered.					
	Males.		Females.		Persons.	
	No.	Per 1,000 of mean Male population.	No.	Per 1,000 of mean Female population.	No.	Per 1,000 of mean population.
1894	755	15·64	326	12·17	1,081	14·40
1895	1,201	20·43	403	12·85	1,604	17·79
1896	1,450	17·63	570	14·10	2,020	16·46
1897	1,825	17·82	818	15·39	2,643	16·99
1898	1,793	16·63	923	15·08	2,716	16·07
1899	1,513	14·39	811	12·80	2,324	13·79
1900	1,487	13·64	753	11·09	2,240	12·66
1901	1,653	14·35	866	11·84	2,519	13·38
1902	1,832	14·59	991	12·36	2,823	13·72
1903	1,829	13·70	959	10·93	2,788	12·60
Total ...	15,338	15·53	7,420	12·68	22,758	14·47

The fluctuations in the death-rate during the ten years have been much more marked amongst males than amongst females, the limits of variation for the former being a maximum of 20·43 in 1895 and a minimum of 13·64 in 1900, whilst in the case of the latter a maximum of 15·39 was attained in 1897 and a minimum of 10·93 in 1903. In every year during the ten under review the male death-rate exceeded the female, the excess being greatest in 1895, when it amounted to as much as 7·58, and least in 1898, when it fell to 1·55. The average male death-rate for the ten years exceeded the female by 2·85.

In the following table, which furnishes particulars relative to the crude death-rate of the State from 1841 to 1903, the informa-

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tion is given for quinquennial groups from 1841 to 1900, and completed by the triennial group 1901-3:—

Period.	Mean Population.	Deaths registered.	
		Number.	Per annum per 1,000 of mean population.
1841–45	3,567	205	11·49
1846–50	4,865	259	10·65
1851–55	9,244	310	6·71
1856–60	13,964	842	12·06
1861–65	17,786	1,393	15·67
1866–70	22,220	1,656	14·91
1871–75	25,789	2,068	16·04
1876–80	27,971	2,003	14·32
1881–85	31,508	2,699	17·13
1886–90	41,729	3,332	15·97
1891–95	66,750	5,430	16·27
1896–1900	158,538	11,943	15·07
1901–1903	205,115	8,130	13·21
1841–1903	43,413	40,276	14·72

Index of Mortality.

As in the case of births and marriages, the rate generally made use of in connection with statistics relating to deaths is the "crude" rate, or rate per 1,000 of the total mean population. Since, however, the death-rate is almost invariably higher amongst males than amongst females, and varies with age, it is evident that a "crude" rate, which deals only with aggregates, and does not take into consideration the "age and sex constitution," that is, the distribution of the population according to age and sex, fails to give a correct view of relative mortality, either of different countries for the same year or of the same country for different years.

In the absence of details as to ages of population, it would, of course, be impossible to use any other than the "crude" rate, or some modification of it, and even when age statistics are available, the "crude" rate possesses, for ordinary uses, the distinct advantage of conveying in one number what would require several numbers to express if rates at various ages for each sex had to be given.

A method has been introduced, however, which combines to some extent the desirable features of both these, the result obtained being the "crude" rate which would exist in some standard population, if the death-rates for various ages found to exist in the population being dealt with had been in operation in the case of the standard population. By this means the conciseness of the "crude" rate is maintained in conjunction with the accuracy of the rate for each age. The rate so obtained is known as the "Index of Mortality."

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At the Conference of Australasian Government Statisticians, held at Hobart in January, 1902, it was decided to adopt this method for comparative purposes, and take as a standard the population of Sweden as enumerated at the last Census, namely, that of 1900, the age-grouping to be as follows:—

Under 1 year.
1 to 20 years.
20 to 40 years.
40 to 60 years.
60 and over.

As, however, the standard made use of by several European Countries, including Sweden itself, is based upon the results of the Swedish Census of 1890, the Statisticians subsequently agreed to adopt this standard instead of the one based on the most recent Census. The index of mortality for Western Australia for the year 1903, computed on this basis, is as follows:—

Age Groups.	Mean population, 1903.	Number of Deaths, 1903.	Death rate. Number of deaths per 1,000 of Mean Population	Standard Population. (Swedish, 1890.) Age distribution per 1,000.	Index of Mortality.
Under 1 year	6,067	946	155·93	25·5	3·98
1 year and under 20 ...	73,828	363	4·92	398·0	1·96
20 years and under 40	100,440	683	6·30	269·6	1·70
40 years and under 60	33,740	485	14·37	192·3	2·76
60 and upwards ...	7,203	361	50·12	114·6	5·74
Total	221,278	2,788	12·60	1,000·0	16·14

It will be seen from this table that the index of mortality for 1903 was 16·14, that is to say, had the death-rates which were experienced in Western Australia in the five specified age-groups been in force in the corresponding age-groups of the standard population, the "crude" rate for that population would have been 16·14 or, to put it somewhat differently, had the mean population of Western Australia for 1903 been distributed, as regards ages, in the same proportion as the standard population, and had the death-rates for the various age-groups been the same as those actually experienced in Western Australia during 1903, the "crude" death-rate for the State would have been 16·14 instead of 12·60.

The index obtained in the manner described is that very generally adopted, but it is not entirely satisfactory, for this reason, that while it makes due allowance for age, none whatever is made for sex-distribution, a somewhat important point, considering the marked difference that exists between male and female death-rates. For instance, on computing the index for Western Australia for 1903, so as to allow for sex as well as age distribution, the result obtained is 15·57 as against 16·14, when age distribution

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only is taken into account, the difference being due to the abnormally large proportion of males in the Western Australian population.

It may be pointed out that, since the computation of the "Index of Mortality" for any year requires the distribution according to age of the population in which the deaths have occurred, and since data relative to ages are available only for Census years, and figures for intercensal years must consequently be estimated, the reliability of the "Index" will be affected by the remoteness of the Census on which such estimated distributions are based, thus furnishing an additional reason in favour of the early establishment of a quinquennial census, a subject which has already been dealt with on pages 279 and 280.

Ages at Death.

The following table shows the number of deaths in various age-groups during 1903 :—

Age Groups.	Males.	Females.	Total.	Percentage of Deaths in each Age Group on Total Deaths.
	No.	No.	No.	%
Under 1 month	160	103	263	9·
1 month and under 3	101	63	164	5·88
3 months and under 6	113	102	215	7·71
6 " " 12	176	128	304	10·91
Total under 12 months	550	396	946	33·93
1 year and under 2	81	58	139	4·99
2 years and under 3	17	16	33	1·18
3 " " 4	15	13	28	1·01
4 " " 5	5	11	16	0·57
Total, 1 year and under 5 years ..	118	98	216	7·75
5 years and under 10	29	27	56	2·01
10 " " 15	21	19	40	1·43
15 " " 20	29	21	50	1·79
20 " " 25	96	41	137	4·91
25 " " 30	114	45	159	5·70
30 " " 35	100	53	153	5·49
35 " " 40	132	49	181	6·49
40 " " 45	135	27	162	5·81
45 " " 50	87	37	124	4·45
50 " " 55	68	20	88	3·16
55 " " 60	86	23	109	3·91
60 " " 65	75	13	88	3·16
65 " " 70	62	36	98	3·52
70 " " 75	55	20	75	2·69
75 " " 80	36	25	61	2·19
80 " " 85	21	7	28	1·00
85 " " 90	3	1	4	0·14
90 " " 95	4	1	5	0·18
Age not stated	8	..	8	0·29
Total, 5 years and over ..	1,161	465	1,626	58·32
Total, all ages	1,829	959	2,788	100·00

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If it be assumed that the age distribution of the population as ascertained at the Census taken for the night of 31st March, 1901, may be applied to the mean population for the five years 1899-1903, and if, in the cases both of population and deaths, the number of persons of unspecified ages be distributed proportionately amongst those specified, the death rate per 1,000 of the mean population in each age-group for the period is as follows:—

Age Group.	Death Rate per 1,000 of mean population in each Age Group—1899-1903.		
	Males.	Females.	Persons.
Under 1 year	167·60	135·06	151·69
1 year and under 5	14·60	12·08	13·35
5 " " 10	2·37	2·03	2·20
10 " " 15	2·15	1·88	2·01
15 " " 20	3·46	3·50	3·48
20 " " 25	6·88	5·65	6·41
25 " " 30	7·29	5·60	6·69
30 " " 35	7·01	7·18	7·06
35 " " 40	9·20	8·26	8·92
40 " " 45	12·10	8·68	11·14
45 " " 50	15·78	9·60	13·98
50 " " 55	19·71	10·94	16·84
55 " " 60	29·53	16·56	25·16
60 " " 65	35·27	20·84	30·37
65 " " 70	54·51	42·97	50·58
70 " " 75	74·58	50·07	67·52
75 " " 80	130·29	125·18	128·68
80 " " 85	171·23	136·51	161·29
85 years and upwards	250·00	175·57	219·44
All ages	14·13	11·76	13·21

Throughout this table, with the exception of the age-groups "15 years and under 20" and "30 years and under 35," the male death-rate exceeds the female, the nearest approach to equality being attained at age "15 years and under 20," with a male rate of 3·46 and a female rate of 3·50.

The age-group "10 years and under 15" is that in which the lowest death-rate was experienced in the cases of both males and females, the respective rates being 2·15 and 1·88.

It is impossible to suggest any suitable explanation for the great excess of mortality of males over females during the earlier years of existence, except it be some as yet unrecognised constitutional difference. After the attainment of adult age, the hardships endured and the risks run, in connection with their ordinary occupations, by a large proportion of males, will, to some extent, account for the higher male death-rate experienced in this period of life, although it must be admitted that in the case of females the dangers connected with child-bearing must, in some degree, tend to equalise the rates during early and middle adult life.

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Infantile Mortality.

The rate usually adopted as a measure of infantile mortality for any year is the percentage of the number of deaths of children under one year of age on the number of births recorded during the year. The figures computed on this basis for each of the ten years, 1894 to 1903, are as follows, separate rates for males and females not being available for the first three years :—

Year.	Infantile mortality (under 12 months.)		
	Males.	Females.	All children.
	%	%	%
1894	..	..	12·62
1895	..	..	14·33
1896	..	..	18·44
1897	19·30	17·38	18·35
1898	17·21	15·96	16·61
1899	14·83	13·12	13·99
1900	14·27	10·88	12·61
1901	13·99	11·72	12·89
1902	15·30	13·01	14·20
1903	16·02	12·12	14·12
Mean	*15·69	*13·22	†14·63

* Mean for 7 years. † Mean for 10 years.

It will be seen from the above table that the rate of infantile mortality has fluctuated considerably during the ten years, the maximum rate for the period being 18·44 for the year 1896, and the minimum 12·61 for 1900. The excess of male over female mortality, which in the case of deaths at all ages has already been commented on, will be seen to hold good also in the case of infants, the male rate exceeding the female for each of the seven years for which details are available, by quantities varying from 1·25, in 1898, to 3·90, in 1903. The effect produced by the excess of male over female births, noticed on page 343, is thus, to a large extent, neutralised by the greater death-rate experienced during the first year amongst male children.

The principal causes of death of children under the age of 12 months, and the number of deaths due to each cause during the

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year 1903, and also during the period of five years from 1899 to 1903 are as follows:—

Cause of Death.	Deaths of children under 12 months of age.					
	Year 1903.			Five Years, 1899 to 1903.		
	Males.	Females.	Total.	Males.	Females.	Total.
Whooping Cough	24	9	33	53	38	91
Diarrhœal Diseases	31	25	56	184	159	343
Starvation, Want of Breast Milk	3	4	7	31	25	56
Tubercular Diseases	12	5	17	52	31	83
Premature Birth	77	51	128	306	229	535
Other Congenital Defects ..	21	18	39	65	46	111
Inflammation of the Brain or its Membranes	12	3	15	47	27	74
Convulsions	21	11	32	99	72	171
Diseases of Respiratory System	47	35	82	176	127	303
Dentition	11	3	14	38	35	73
Diseases of Stomach	17	12	29	76	61	137
Enteritis	133	118	251	492	401	893
Accident or Negligence ..	15	10	25	52	37	89
Debility, Atrophy, Inanition ..	79	59	138	374	295	669
Other causes	47	33	80	202	150	352
Total	550	396	946	2,247	1,733	3,980

The following table gives for each of the five years, 1899 to 1903, the total deaths of children under 12 months from each of the causes specified:—

Cause of Death.	Deaths of children under 12 months of age.					Five years, 1899 to 1903.	
	1899.	1900.	1901.	1902.	1903.	Number.	Percentage on total.
Whooping Cough ..	18	20	8	12	33	91	2·29
Diarrhœal Diseases ..	77	65	59	86	56	343	8·62
Starvation, Want of Breast Milk	12	12	15	10	7	56	1.41
Tubercular Diseases ..	15	20	13	18	17	83	2·08
Premature Birth	112	94	87	114	128	535	13·44
Other Congenital Defects	21	20	16	15	39	111	2·79
Inflammation of the Brain or its Membranes ..	13	13	15	18	15	74	1·86
Convulsions	38	38	25	38	32	171	4·30
Diseases of Respiratory System	71	35	58	57	82	303	7·61
Dentition	13	14	17	15	14	73	1·83
Diseases of Stomach ..	37	31	14	26	29	137	3·44
Enteritis	112	148	175	207	251	893	22·44
Accident or Negligence ..	15	10	19	20	25	89	2·24
Debility, Atrophy, Inanition	128	110	137	156	138	669	16·81
Other causes	42	58	79	93	80	352	8·84
Total	724	688	737	885	946	3,980	100·00

It will be seen that for the five years under review, "Enteritis" claimed more infant victims than did any other of the diseases to which children are liable, about 22½ per cent. of the total number

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of deaths under one year being attributable to this cause. Next in order of fatality came the more or less indefinite group combined under the head of "Debility, Atrophy, Inanition," which accounted for nearly 17 per cent. of the deaths, while "Premature Birth," with 13½ per cent., "Diarrhœal Diseases, with 8½ per cent., and "Diseases of the Respiratory System," with 7½ per cent., followed in the order named. The principal diseases included in the last-mentioned group are Bronchitis, Pneumonia, and Congestion of the Lungs.

In the next table is given, for each of the specified causes of death for the five years 1899-1903, the percentage of the number of deaths under twelve months on the total number of births for the period, particulars for males and females being given separately:—

Cause of Death.	Infantile mortality, 1899-1903.—Percentage of deaths under 12 months on total births.		
	Males.	Females.	Total.
	%	%	%
Whooping Cough	0·35	0·27	0·31
Diarrhœal Diseases	1·22	1·12	1·17
Starvation, Want of Breast Milk ..	0·21	0·17	0·19
Tubercular Diseases	0·35	0·22	0·28
Premature Birth	2·03	1·61	1·83
Other Congenital Defects	0·43	0·32	0·38
Inflammation of the Brain or its Membranes	0·31	0·19	0·25
Convulsions	0·66	0·51	0·58
Diseases of Respiratory System ..	1·17	0·89	1·03
Dentition	0·25	0·25	0·25
Diseases of Stomach	0·51	0·43	0·47
Enteritis	3·27	2·82	3·05
Accident or Negligence	0·35	0·26	0·31
Debility, Atrophy, Inanition	2·49	2·07	2·29
Other causes	1.34	1·05	1·20
All causes	14·94	12·18	13·59

It is of interest to note that, with the single exception of "Dentition," where the rate is the same for both sexes, the excess of male over female infantile mortality is in evidence for each of the causes of death enumerated in the foregoing table.

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The rates of infantile mortality for the year 1903, for each of the Territorial divisions of the State defined on page 288, are as follow:—

Division.	Deaths of children under 12 months of age, 1903.					
	Males.		Females.		Total.	
	Number.	Percentage on male births for year.	Number.	Percentage on Female births for year.	Number.	Percentage on total births for year.
Metropolitan ..	268	18·22	218	15·94	486	17·12
South-Western ..	115	12·14	74	8·03	189	10·11
Central and Eastern	163	16·67	103	10·79	266	13·76
Northern and North-Western	4	10·81	1	4·76	5	8·62
Total ..	550	16·02	396	12·12	946	14·12

It will be seen that the Infantile death-rate for 1903 was considerably higher in the Metropolitan than in any of the other divisions, the rate for children irrespective of sex being being 17·12 as compared with 13·76 for the Central and Eastern, 10·11 for the South-Western, and 8·62 for the Northern and North-Western. For males and females separately the divisions occupy the same relative positions. The lowness of the rate for the Northern and North-Western division is somewhat remarkable, but the numbers involved are so small as to prevent any reliable conclusion being deduced therefrom. Details concerning the rates of Infantile mortality in different portions of the State are not available for any year prior to 1903.

Deaths in Seasons.

The following table shows the number of deaths registered in each quarter of each of the ten years, 1894 to 1903:—

Year.	Number of deaths registered in Quarter ended last day of—				Number of deaths registered during Year.
	March.	June.	September.	December.	
1894	223	316	237	305	1,081
1895	416	499	332	357	1,604
1896	503	607	353	557	2,020
1897	634	869	501	639	2,643
1898	790	788	553	585	2,716
1899	574	678	481	591	2,324
1900	577	565	464	634	2,240
1901	572	713	594	640	2,519
1902	671	805	648	699	2,823
1903	675	780	622	711	2,788
Total	5,635	6,620	4,785	5,718	22,758

The season of the year in which deaths are most numerous is the quarter ending 30th June. Though the number recorded for

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that quarter has been exceeded on three occasions during the ten years under review, namely, in the March quarters of 1898 and 1900, and the December quarter of 1900, the average number of deaths for the ten years registered in the June quarter amounts to 662, as compared with 572 in the December quarter, 564 in the March quarter, and 479 in the September quarter.

The following table shows the average number of deaths registered in each month during the six years, 1898 to 1903:—

Month.	Average number of deaths registered (1898 to 1903.)			
	Males.	Females.	Total.	Daily average.
January	149	81	230	7·42
February	132	70	202	7·21
March	138	73	211	6·81
April	156	85	241	8·03
May	166	89	255	8·23
June	149	76	225	7·50
July	129	60	189	6·10
August	130	67	197	6·35
September	113	62	175	5·83
October	133	67	200	6·45
November	143	74	217	7·23
December	146	80	226	7·29
Total ..	1,684	884	2,568	7·04

For the six years under review the average number of deaths registered attained a maximum in the month of May, in the cases of both males and females, whilst the minimum for males and also for total deaths was attained in September, and the minimum for females in July. The highest daily averages are those for May (8·23), April (8·03), and June (7·50), while the lowest are those for September (5·83), July (6·10), and August (6·35).

The daily averages for the four quarters are as follows:—

Quarter ended—	Daily average number of deaths registered, 1898-1903.
30th September	6·10
31st December	6·99
31st March	7·14
30th June	7·92

It will thus be seen that for the year ending 30th June a well-defined increase in the daily average number of deaths is noticeable in the successive quarters.

Deaths in Public Institutions.

The attached table gives the number of deaths which have occurred in the public institutions of the State during each of the

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seven years, 1897 to 1903, and shows that, whereas in 1897 the percentage of such deaths on the total number of deaths for the year was 25·31, the percentage in 1903 had fallen to 21·77.

Year.	Males.	Females.	Total.	Percentage of deaths in Public Institutions on total deaths.
	No.	No.	No.	%
1897	598	71	669	25·31
1898	574	116	690	25·41
1899	440	117	557	23·97
1900	403	95	498	22·23
1901	457	105	562	22·31
1902	495	106	601	21·29
1903	487	120	607	21·77
Total ..	3,454	730	4,184	23·17

Metropolitan and Extra-Metropolitan Death-rates.

The following table represents an analysis of the deaths during the six years, 1898 to 1903, distinguishing those occurring in Perth and its suburbs, and those occurring elsewhere, and compares the relative death rates of the metropolitan and extra-metropolitan areas of the State:—

Year.	Deaths Registered.					
	Perth and Suburbs.		Remainder of State.		The whole State.	
	Number.	Per 1,000 of mean population.	Number.	Per 1,000 of mean population.	Number.	Per 1,000 of mean population.
1898	739	20·65	1,977	14·84	2,716	16·07
1899	607	17·54	1,717	12·82	2,324	13·79
1900	521	14·72	1,719	12·13	2,240	12·66
1901	622	16·74	1,897	12·53	2,519	13·38
1902	753	18·45	2,070	12·55	2,823	13·72
1903	805	17·81	1,983	11·26	2,788	12·60
Total ..	4,047	17·67	11,363	12·61	15,410	13·64

In each of the six years under review, the death-rate of Perth and suburbs considerably exceeded that of the remainder of the State, the excess per 1,000 of the mean population varying from 2·59, in 1900, to 6·55, in 1903; while the average for the six years showed an excess of 5·06. The whole of this higher death-rate must not, however, be set down to inferior sanitary conditions, as the age distribution of the population, the existence of numerous

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public and private institutions for the sick and aged, and the tendency for persons in ill-health to gravitate to the city for nursing and medical attendance, have co-operated to swell the metropolitan death-rate.

Territorial Divisions.

Particulars relative to the number of deaths registered during each of the years 1901 to 1903, in the territorial divisions defined on page 288, are as follows:—

Division.	Deaths registered.								
	1901.			1902.			1903.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Metropolitan ..	649	400	1,049	719	427	1,146	783	508	1,291
South-Western ..	364	213	577	368	263	631	388	208	596
Central and Eastern	549	248	797	671	297	968	552	237	789
Northern and North-Western	91	5	96	74	4	78	106	6	112
Total ..	1,653	866	2,519	1,832	991	2,823	1,829	959	2,788

The next table gives separately for males, females, and persons the number of deaths per 1,000 of mean population of each of these divisions for the three years 1901 to 1903:—

Division.	Number of Deaths per 1,000 of mean population.								
	1901.			1902.			1903.		
	Males.	Females.	Persons.	Males.	Females.	Persons.	Males.	Females.	Persons.
Metropolitan ..	17·13	12·86	15·20	17·41	12·52	15·19	17·83	13·60	15·89
South-Western ..	11·89	9·56	10·91	11·03	10·76	10·91	10·93	7·78	9·58
Central and Eastern	13·11	13·11	13·11	14·70	14·32	14·58	11·38	10·44	11·08
Northern and North-Western	18·87	6·09	17·01	14·07	4·44	12·66	18·96	6·08	17·03
The whole State	14·35	11·84	13·38	14·59	12·36	13·72	13·70	10·93	12·60

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Causes of Death.

The system of classification of causes of death adopted in Western Australia is that which was devised by Dr. Ogle, on the basis of a method determined upon by a committee appointed by the Royal College of Physicians, London, and adopted in the Annual Reports of the Registrar General of England since 1881. This system has for some years been made use of, with slight variations, by all the Australian States and the Colony of New Zealand; but owing to the time which has elapsed since it was prepared, and the progress which medical science has made in the meantime, it has been felt that considerable modification might, with advantage, be made in it; and the system of Dr. Bertillon, which has been adopted in France, many of the American States, and also in the Dominion of Canada, has been suggested as a suitable substitute. The question of introducing this system into Australasia was brought under the consideration of the statisticians of the several Australian States at their Hobart Conference of January, 1902, when, although it was generally recognised by them that a revision of the present classification is certainly desirable, it was unanimously decided that the initiation of such a scheme should be left to the mother country, and that, in the meantime, the classification of causes of death to be made throughout the Commonwealth should be that adopted in the office of the Registrar General of England. A modification of the scheme previously in use was made by that office in the report for the year 1901, published in 1903, but up to the present the Australian States have not made any corresponding alteration in their system of classification.

The following table shows the number of deaths under each class and sub-class of disease for the year 1903:—

Class and Sub-class.	Causes of Death.	Number of Deaths.			Proportion per cent.
		Males.	Females.	Total.	
Class I. ..	Specific, Febrile, or Zymotic Diseases—				
Sub-class 1 ..	Miasmatic Diseases ..	147	67	214	7·68
Do. 2 ..	Diarrhœal Diseases ..	64	37	101	3·62
Do. 3 ..	Malarial Diseases ..	25	..	25	0·90
Do. 4 ..	Zoogenous Diseases ..	..	..	..	..
Do. 5 ..	Venereal Diseases	8	1	9	0·32
Do. 6 ..	Septic Diseases	7	16	23	0·82
Total, Class I.	.. ..	251	121	372	13·34
Class II. ..	Parasitic Diseases	3	3	6	0·22
Class III. ..	Dietetic Diseases	32	8	40	1·43
Class IV. ..	Constitutional Diseases ..	195	119	314	11·26
Class V. ..	Developmental Diseases ..	135	88	223	8·00

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Causes of Death—continued.

Class and Sub-class.	Causes of Death.	Number of Deaths. Males.	Females.	Total.	Proportion per cent.
Class VI. ..	Local Diseases:—				
Sub-class 1 ..	Diseases of the Nervous System	131	70	201	7·21
Do. 2 ..	Diseases of the Organs of Special Sense ..	2	1	3	0·11
Do. 3 ..	Diseases of the Circulatory System	155	73	228	8·18
Do. 4 ..	Diseases of the Respiratory System	185	78	263	9·43
Do. 5 ..	Diseases of the Digestive System	261	210	471	16·89
Do. 6 ..	Diseases of the Lymphatic System and Ductless Glands	..	2	2	0·07
Do. 7 ..	Diseases of the Urinary System	55	25	80	2·87
Do. 8 ..	Diseases of the Organs of Generation	..	7	7	0·25
Do. 9 ..	Diseases of Parturition ..	..	24	24	0·86
Do. 10 ..	Diseases of the Organs of Locomotion	4	1	5	0·18
Do. 11 ..	Diseases of the Integumentary System	6	2	8	0·29
Total, Class VI.	.. ..	799	493	1,292	46·34
Class VII. ..	Violence:—				
Sub-class 1 ..	Accident or Negligence ..	227	42	269	9·65
Do. 2 ..	Homicide	4	2	6	0·22
Do. 3 ..	Suicide	48	2	50	1·79
Do. 4 ..	Execution	3	..	3	0·11
Total, Class VII.	.. ..	282	46	328	11·77
Class VIII. ..	Ill-defined or not specified causes	132	81	213	7·64
Total, all causes	.. ..	1,829	959	2,788	100·00

The next table gives a summary of the causes of death of persons of both sexes, as registered during each of the ten years, 1894 to 1903:—

Class.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.
I.—Specific Febrile, or Zymotic Diseases ..	168	503	586	678	676	431	363	394	459	372
II.—Parasitic Diseases ..	..	..	..	8	4	3	11	8	4	6
III.—Dietetic Diseases ..	16	30	31	47	53	51	47	50	35	40
IV.—Constitutional Diseases	89	115	145	188	214	226	246	310	314	314
V.—Developmental Diseases	93	100	125	171	163	198	176	173	211	223
VI.—Local Diseases ..	467	574	750	1,069	1,159	968	996	1,117	1,315	1,292
VII.—Violence	109	123	155	255	230	290	264	282	284	328
VIII.—Ill-defined and not specified Causes ..	139	159	228	227	217	157	137	185	201	213
Total	1,081	1,604	2,020	2,643	2,716	2,324	2,240	2,519	2,823	2,788

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The heavy death-rate in Class I., for the years 1895 to 1898, was mainly due to the prevalence of typhoid fever, the number of deaths from which increased from 73 in 1894 to 400 and 407 in 1897 and 1898, respectively; but has fallen again to 132 for 1903. In Class VI., from 1897 to 1903, there has been a considerable increase in the number of deaths from pneumonia, which, during that period, averaged 163 per annum, as compared with a total of 57 in 1894; whilst from 28 deaths from enteritis in 1894, a total of 245 was reached in 1898, the number falling to 165 in the following year, but gradually rising again to 316 in 1903, and averaging 237 per annum for the final seven years of the decade.

In the following table the principal or more important causes of the deaths registered during 1903 have been arranged in order of fatality; and the percentage of the number of deaths from each cause on the total number for the year has also been given:—

Cause of Death.	Deaths registered.	
	No.	Percentage on total deaths.
1. Enteritis	316	11·33
2. Accidental Death	269	9·65
3. Debility, Atrophy, Inanition	167	5·99
4. Pneumonia	165	5·92
5. Phthisis	144	5·16
6. Typhoid (Enteric Fever)	132	4·73
7. Premature Birth	128	4·59
8. Heart Disease (undefined)	123	4·41
9. Cancer	92	3·30
10. Bronchitis	61	2·19
11. Diarrhœa	59	2·12
12. Old Age	56	2·01
13. Suicide	50	1·79
14. Inflammation of the Brain or its Membranes	47	1·69
15. Convulsions	44	1·58
16. Whooping Cough	42	1·51
17. Diseases of Stomach (undefined)	39	1·40
18. Endocarditis, Valvular Disease	38	1·36
19. Dysentery	37	1·33
20. Not specified, or ill-defined	33	1·18
21. Diseases of Nervous System (undefined)	32	1·15
22. Syncope	28	1·00
23. Bright's Disease (Nephria)	28	1·00
24. Paralysis (undefined)	23	0·82
25. Aneurism	23	0·82
26. Nephritis	23	0·82

Typhoid fever, which for some years occupied the chief position in the list of fatal diseases in Western Australia, had in the year 1903 dropped down to sixth place, and was responsible for only 4¾ per cent. of the total deaths of the year, as against 20 per cent. in 1895 and 1896, 15 per cent. in 1897, and 11 per cent. in 1898. Enteritis being principally an infantile complaint, the large number of deaths appearing under this head is chiefly owing to the increased birth-rate experienced during recent years; thus, of the 316

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deaths due to enteritis no fewer than 300 were cases of children under 5 years of age, and of these 251 were under 12 months. Of the cases classed as "Debility, Atrophy, Inanition," 138 out of the total of 167 were deaths of children under 12 months, while, of the remaining 29, 16 were between the ages of 1 and 5.

Typhoid Fever.—Out of the total of 214 deaths from miasmatic diseases which occurred during 1903, 132, or rather more than 60 per cent., were due to typhoid fever. This disease, which, during the ten years 1894 to 1903, was responsible for 2,210 deaths in Western Australia out of a total of 22,758, or slightly less than 10 per cent., was the cause of comparatively few deaths in this State prior to 1894, when the great rush to the then newly discovered goldfields may be said to have fairly set in. From the following table it will be seen that the ravages of the disease have now been greatly checked by the present more settled conditions of life combined with the increased and increasing sanitary precautions taken in all parts of the State. The number of deaths per 1,000 of mean population from typhoid in 1903 was the lowest recorded for any of the ten years under review:—

Year.	Deaths from Typhoid Fever.								
	Males.			Females.			Persons.		
	Number.	Per 1,000 of male mean population.	Percentage on total male deaths.	Number.	Per 1,000 of female mean population.	Percentage on total female deaths.	Number.	Per 1,000 of mean population.	Percentage on total deaths.
1894	*	..	..	*	..	..	73	0.97	6.75
1895	*	..	..	*	..	..	325	3.60	20.26
1896	*	..	..	*	..	..	400	3.26	19.80
1897	336	3.28	18.41	71	1.34	8.68	407	2.62	15.40
1898	221	2.05	12.33	75	1.23	8.12	296	1.75	10.90
1899	100	0.95	6.61	48	0.76	5.92	148	0.88	6.37
1900	100	0.92	6.72	28	0.41	3.72	128	0.72	5.71
1901	94	0.82	5.69	26	0.36	3.00	120	0.64	4.76
1902	136	1.08	7.42	45	0.56	4.54	181	0.88	6.41
1903	99	0.74	5.41	33	0.38	3.44	132	0.60	4.73

* Details not available.

It will also be noticed that, whilst the largest number of deaths from typhoid fever in any one year was the 407 recorded in 1897, the highest death rate per 1,000 of the mean population, and also the greatest percentage on total deaths, were those experienced in 1895. From 3·60, in the latter year, the death rate continuously declined, until in 1901 it stood at 0·64. In the following year a rise to 0·88 was experienced, succeeded by a fall to 0·60 in 1903, the lowest rate recorded during the ten years. The percentage on total deaths also fell from 20·26 in 1895 to 4·73 in 1903.

During the seven years for which details as to sex are available, the male death rate from typhoid fever has been almost double the

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female rate, while the proportion of deaths from typhoid to total deaths from all causes has also been very much greater amongst males than amongst females.

Diarrhœal Diseases.—Under this head are included cholera (sporadic, simple), diarrhœa, and dysentery. The following table shows the mortality from these diseases during the ten years, 1894 to 1903:—

Year.	Deaths from Diarrhœal Diseases.								
	Males.			Females.			Persons.		
	Number.	Per 1,000 of male mean population.	Percentage on total male deaths.	Number.	Per 1,000 of female mean population.	Percentage on total female deaths.	Number.	Per 1,000 of mean population.	Percentage on total deaths.
1894	*	..	..	*	..	..	62	0.83	5.74
1895	*	..	..	*	..	..	104	1.15	6.48
1896	*	..	..	*	..	..	129	1.05	6.39
1897	101	0.99	5.53	63	1.19	7.70	164	1.05	6.21
1898	157	1.46	8.75	78	1.27	8.45	235	1.39	8.65
1899	85	0.81	5.62	64	1.01	7.89	149	0.88	6.41
1900	75	0.69	5.04	42	0.62	5.58	117	0.66	5.22
1901	61	0.53	3.69	44	0.60	5.08	105	0.56	4.17
1902	91	0.72	4.97	56	0.70	5.65	147	0.71	5.21
1903	64	0.48	3.50	37	0.42	3.86	101	0.45	3.62

* Details not available.

The death-rate from diarrhœal diseases attained its maximum for the ten years in 1898, when it amounted to 1·39 per 1,000 of the mean population, the percentage on total deaths being 8·65. For the three succeeding years a decline in both the death rate and the percentage were experienced, followed by a rise in both in 1902, and a further fall in 1903, the figures for the latter year, viz., 0·46 per 1,000 of mean population; and 3·62 per cent. of total deaths, being the lowest recorded for the ten years, and being considerably less than half of those for 1898.

Cancer.—This terrible disease, which, throughout the world, appears to be claiming an ever increasing number of victims from year to year, was responsible in 1903 for 92 deaths, the largest number recorded in Western Australia in any one of the past ten years. The variation in the male death-rate from this cause during the seven years, 1897 to 1903, is of such a nature that, as far as the male experience of this State is concerned, the disease cannot be definitely said to be on the increase. In the case of the female death-rate, however, a marked increase is in evidence, as is also the

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case with the rate for persons irrespective of sex. The following table gives particulars for the ten years, 1894 to 1903:—

Year.	Deaths from Cancer.								
	Males.			Females.			Persons.		
	Number.	Per 1,000 of male mean population.	Percentage on total male deaths.	Number.	Per 1,000 of female mean population.	Percentage on total female deaths.	Number.	Per 1,000 of mean population.	Percentage on total deaths.
1894 ..	*	..	..	*	..	..	22	0·29	2·04
1895 ..	*	..	..	*	..	..	25	0·28	1·56
1896 ..	*	..	..	*	..	..	30	0·24	1·49
1897 ..	37	0·36	2·03	14	0·26	1·71	51	0·33	1·93
1898 ..	39	0·36	2·18	16	0·26	1·73	55	0·33	2·03
1899 ..	41	0·39	2·71	19	0·30	2·34	60	0·36	2·58
1900 ..	33	0·30	2·22	19	0·28	2·52	52	0·29	2·32
1901 ..	53	0·46	3.21	30	0·41	3·46	83	0·44	3·29
1902 ..	46	0·37	2.51	39	0·49	3·94	85	0·41	3·01
1903 ..	44	0·33	2.41	48	0·55	5·00	92	0·42	3·30

* Details not available.

The question of the increase of cancer during recent years is one which has lately excited considerable interest, and in connection with which there has been a considerable amount of controversy, the opinion held by some experts on the subject being that a large portion of the apparent increase in mortality from cancer is really due to improved diagnosis, and that, in consequence of such improvement, many diseases are now classed as cancer which were formerly incorrectly ascribed to other causes.

Classified according to the type of disease, the number of deaths from cancer registered during 1903 is as follows:—

Type of Disease.	Deaths from Cancer, 1903.		
	Males.	Females.	Total.
Carcinoma	19	26	45
Sarcoma	4	..	4
Epithelioma	3	..	3
Scirrhus	1	1	2
Cancer (undefined)	17	21	38
Total	44	48	92

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The next table furnishes particulars relative to the same deaths classified according to the part affected.

Part affected.	Deaths from Cancer, 1903.		
	Males.	Females.	Total.
Abdomen	1	1	2
Axilla	1	..	1
Bowels	1	..	1
Breast	..	2	2
Colon	..	1	1
Face	1	..	1
Gastro-Hepatic Omentum	..	1	1
Head and Face	1	..	1
Intestine	2	1	3
Jaw	2	..	2
Kidney	1	..	1
Larynx	..	1	1
Liver	10	6	16
Neck	1	..	1
Œsophagus	1	..	1
Orbit	1	..	1
Pancreas	..	1	1
Prostate	1	..	1
Pylorus	2	1	3
Rectum	1	3	4
Stomach	7	4	11
Throat	2	..	2
Tongue	1	..	1
Uterus	..	14	14
Part not stated	7	12	19
Total	44	48	92

Phthisis.—The *number* of deaths annually from phthisis during the past ten years steadily increased from 53 in 1894 to 151 in 1901, falling slightly to 146 in 1902 and 144 in 1903. As, however, the population had in the same time nearly trebled itself, and as many people suffering from this disease in very advanced stages now visit Australasia solely for the sake of their health, a much larger numerical increase than has actually been experienced might

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reasonably have been expected. Particulars for the ten years, 1894 to 1903, are as follows:—

Year.	Deaths from Phthisis.								
	Males.			Females.			Persons.		
	Number.	Per 1,000 of male mean population.	Percentage on total male deaths.	Number.	Per 1,000 of female mean population.	Percentage on total female deaths.	Number.	Per 1,000 of mean population.	Percentage on total deaths.
1894 ..	*	..	..	*	..	..	53	0·71	4·90
1895 ..	*	..	..	*	..	..	57	0·63	3·55
1896 ..	*	..	..	*	..	..	83	0·68	4·11
1897 ..	53	0·52	2·90	34	0·64	4·16	87	0·56	3·29
1898 ..	71	0·66	3·96	42	0·69	4·55	113	0·67	4·16
1899 ..	81	0·77	5·35	33	0·52	4·07	114	0·68	4·91
1900 ..	81	0·74	5·45	56	0·82	7·44	137	0·77	6·12
1901 ..	93	0·81	5·63	58	0·79	6·70	151	0·80	5·99
1902 ..	101	0·80	5·51	45	0·56	4·54	146	0·71	5·17
1903 ..	99	0·74	5·41	45	0·51	4·69	144	0·65	5·16

* Details not available.

The highest death-rate from phthisis for the 10 years was that recorded for the year 1901, viz., 0·80 per 1,000 of mean population, while the lowest was 0·56 for 1897. For the seven years for which the sex distribution of the deaths is available, the male rate exceeded the female on four, and fell short of it on three occasions. The male maximum rate was attained in 1901 with 0·81, and the minimum in 1897 with 0·52, while the female maximum rate of 0·82 occurred in 1900, and the minimum of 0·51 in 1903.

Diseases of the Respiratory System.—The principal ailments included under this head are pneumonia, bronchitis, congestion of the lungs, and pleurisy. Diseases of the respiratory system have been responsible during the ten years, 1894 to 1903, for no fewer than 2,353 deaths, of which 1,373, or nearly 60 per cent., were due to pneumonia, whilst of the remainder bronchitis claimed 549, congestion of the lungs 110, and pleurisy 111. Particulars for each of the ten years are as follow:—

Year.	Deaths from Diseases of the Respiratory System.								
	Males.			Females.			Persons.		
	Number.	Per 1,000 of male mean population.	Percentage on total male deaths.	Number.	Per 1,000 of female mean population.	Percentage on total female population.	Number.	Per 1,000 of mean population.	Percentage on total deaths.
1894	*	..	..	*	..	..	145	1·93	13·41
1895	*	..	..	*	..	..	191	2·12	11·91
1896	*	..	..	*	..	..	176	1·43	8·71
1897	174	1·70	9·53	68	1·28	8·31	242	1·56	9·16
1898	189	1·75	10·54	92	1·50	9·97	281	1·66	10·35
1899	175	1·66	11·57	84	1·33	10·36	259	1·54	11·14
1900	178	1·63	11·97	49	0·72	6·51	227	1·28	10·13
1901	200	1·74	12·10	65	0·89	7·51	265	1·41	10·52
1902	210	1·67	11·46	94	1·17	9·48	304	1·48	10·77
1903	185	1·39	10·11	78	0·89	8·13	263	1·19	9·43

* Details not available.

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The greatest number of deaths from respiratory diseases in any one of the ten years was 304, recorded in 1902, in which year the rate per 1,000 of mean population was 1·48. The highest death-rate for the period was that of 1895, viz., 2·12, while the rate for 1903, viz., 1·18, was the lowest. Throughout the seven years, 1897 to 1903, the male death-rate from these diseases has been considerably higher than the female, the male rate varying between 1·39 for 1903 and 1·75 for 1898, while the limits of variation of the female rate were 0·72 for 1900 and 1·50 for 1898.

Deaths due to Child-birth.—During the year 1903, 32 deaths of women from diseases incidental to child-birth were recorded. Details for the seven years, 1897 to 1903, are as follows:—

Particulars.	1897.	1898.	1899.	1900.	1901.	1902.	1903.
Abortion, Miscarriage ..	1	3	3	3	8	5	5
Puerperal Mania	1	1	..	1	..	2	2
Puerperal Convulsions ..	1	1	7	3	5	5	1
Puerperal Fever	6	11	7	16	9	5	8
Placenta Prævia (Flooding)	1	1	1	3	2	2	3
Phlegmasia Dolens ..	..	..	1	..	..	..	..
Other Accidents of Child-birth	12	9	8	13	4	18	13
Total Deaths ..	22	26	27	39	28	37	32
Number of Confinements	4,071	5,028	5,263	5,544	5,819	6,323	6,815
Number of Deaths in Child-birth per 1,000 Confinements	5.40	5.17	5.13	7.03	4.81	5.85	4.70

The number of confinements used in the above table has been obtained from the total number of births (live and still) for each year by deducting one for each case of twins and two for each case of triplets recorded. It is evident that in the case of all such diseases as are incidental to child-birth a rate based on the number of confinements gives far more accurate results for comparative purposes than one based on the total of the mean population. For the whole of the period of seven years, 1897 to 1903, 211 deaths were recorded as due to child-birth, while 38,863 confinements occurred during the same period, giving an average of 5·43 deaths to every 1,000 confinements, or one death to every 184 confinements.

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The following are the ages of the mothers who died in childbirth during 1903:—

Age.	Deaths in Childbirth during 1903.		
	Married mothers.	Unmarried mothers.	Total.
16 years and under 17 ..	1	..	1
17 " " 18 ..	..	1	1
18 " " 19 ..	..	1	1
21 " " 25 ..	7	..	7
25 " " 30 ..	9	1	10
30 " " 35 ..	3	..	3
35 " " 40 ..	6	..	6
40 " " 45 ..	3	..	3
Total	29	3	32

Of the 29 deaths of married mothers, 15 were cases of first birth.

Accidents.—The increased employment of labour during recent years in the mining, timber, and other industries of the State, and also on railways and other public works, has naturally led to an increase in the number of accidental deaths. The mortality from these causes during the past ten years is as follows:—

Year.	Deaths from Accident or Negligence.								
	Males.			Females.			Persons.		
	Number.	Per 1,000 of male mean population.	Percentage on total male deaths.	Number.	Per 1,000 of female mean population.	Percentage on total female deaths.	Number.	Per 1,000 of mean population.	Percentage on total deaths.
1894 ..	*	..	..	*	..	..	88	1·17	8·14
1895 ..	*	..	..	*	..	..	95	1·05	5·92
1896 ..	*	..	..	*	..	..	128	1·04	6·34
1897 ..	184	1·80	10·08	27	0·51	3·30	211	1·36	7·98
1898 ..	162	1·50	9·03	34	0·56	3·68	196	1·16	7·22
1899 ..	216	2·05	14·28	33	0·52	4·07	249	1·48	10·71
1900 ..	186	1·71	12·51	30	0·44	3·98	216	1·22	9·64
1901 ..	202	1·75	12·22	34	0·46	3·93	236	1·25	9·37
1902 ..	188	1·50	10·26	37	0·46	3·73	225	1·09	7·97
1903 ..	227	1·70	12·41	42	0·48	4·38	269	1·22	9·65

* Details not available.

During the ten years no fewer than 1,913 accidental deaths were recorded, the year in which the greatest number occurred being 1903, when the total amounted to 269, and the rate per 1,000 of mean population to 1·22. The highest death rate from accidental deaths during the ten years was 1·48 for 1899, and the lowest 1·04 for 1896. Throughout the seven years 1897 to 1903, the male death rate from accidental causes has been more than three times as great as the female, the highest male rate for the period being 2·05,

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for 1899, and the lowest 1·50, for 1898 and 1902, while the highest female rate was 0·56, for 1898, and the lowest 0·44, for 1900. Nearly 11½ per cent. of the total male deaths for the seven years were due to accident or negligence, while less than 4 per cent. of the female deaths were so due.

In the following table the total number of deaths from each specified kind of accident during the ten years is shown, and also the percentage which the number of deaths from each cause bears to the total number of accidental deaths:—

Nature of Accident.	Accidental Deaths during the ten years — 1894-1903.	
	Number.	Percentage on total Accidental Deaths.
Fractures, Contusions	798	41.72
Gunshot Wounds	47	2.46
Cuts, etc.	59	3.08
Burn, Scald	219	11.45
Sunstroke	158	8.26
Lightning	6	0.31
Poison	67	3.50
Bite of Snake or Insect	2	0.10
Drowning	329	17.20
Suffocation	130	6.80
Otherwise	98	5.12
Total	1,913	100.00

Suicide.—Out of 328 violent deaths in Western Australia during 1903, 50 were cases of suicide, the largest number recorded in the State for any single year. The mortality from this cause during the 10 years, 1894 to 1903, was:—

Year.	Suicides.								
	Males.			Females.			Persons.		
	Number.	Per 1,000 of male mean population.	Percentage on total male deaths.	Number.	Per 1,000 of female mean population.	Percentage on total female deaths.	Number.	Per 1,000 of mean population.	Percentage on total deaths.
1894 ..	*	..	..	*	..	..	17	0·23	1·57
1895 ..	*	..	..	*	..	..	26	0·29	1·62
1896 ..	*	..	..	*	..	..	25	0·20	1·24
1897 ..	30	0·29	1·64	5	0·09	0·61	35	0·22	1·32
1898 ..	27	0·25	1·51	3	0·05	0·33	30	0·18	1·10
1899 ..	29	0·28	1·92	3	0·05	0·37	32	0·19	1·38
1900 ..	30	0·28	2·02	5	0·07	0·66	35	0·20	1·56
1901 ..	34	0·30	2·06	6	0·08	0·69	40	0·21	1·59
1902 ..	46	0·37	2·51	3	0·04	0·30	49	0·24	1·74
1903 ..	48	0·36	2·62	2	0·02	0·21	50	0·23	1·79

* Details not available.

Out of the 339 suicidal deaths which have occurred during the ten years, although the greatest number in one year was that recorded in 1903, the largest death-rate per 1,000 of mean population from this cause (0·29) was experienced in 1895, the lowest (0·18) being that for 1898. From the latter year onward to 1902 a

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small but steady increase in the rate took place, succeeded by a slight decline for 1903. Considering the nature of this cause of death and the comparative smallness of the numbers involved, the regularity in the death-rate for the ten years, which averages 0·22 per annum per 1,000 of mean population, is somewhat remarkable.

For the seven years, 1897 to 1903, the male death-rate from suicides was about five times as great as the female.

The number of deaths resulting during the ten years, 1894 to 1903, from each of the different methods employed in committing suicide, is shown in the following table, and also the percentage of the number under each head on the total number for the period. It will be seen that during that time 339 persons committed suicide, and that by far the most common method of self-destruction was by shooting, 114 cases, or nearly 34 per cent., of the total number being recorded as due to "gunshot wounds," which, of course, includes wounds caused by firearms of any description:—

Cause of Death.	Suicides during the ten years 1894 to 1903.	
	Number.	Percentage on total Suicides.
Gunshot Wounds	114	33·62
Cut, Stab	60	17·70
Poison	54	15·93
Drowning	21	6·19
Hanging	48	14·16
Otherwise	42	12·40
Total	339	100·00

Certification of Causes of Death.

Out of the total of 2,788 deaths registered during 1903, medical certificates of cause of death were issued in 2,359 cases or about 85 per cent. of the total, while in 284, or rather more than 10 per cent. of the total cases, Coroner's inquests were held.

Details concerning the certification of causes of death for 1903 are as follows:—

Particulars.	Deaths registered during 1903.					
	Males.		Females.		Persons.	
	Number.	Percentage on total males.	Number	Percentage on total females	Number.	Percentage on total persons.
Medical Certificate ..	1,472	80·47	887	92·50	2,359	84·60
Coroner's Inquest ..	254	13·89	30	3·13	284	10·19
Justice's Order for burial without Inquest	64	3·50	36	3·75	100	3·59
Not certified or not stated	39	2·14	6	0·62	45	1·62
Total ..	1,829	100·00	959	100·00	2,788	100·00

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Inquests.

The following table furnishes summarised particulars relative to the causes of death assigned by Coroners' juries, in the case of inquests held concerning deaths registered during 1903, and also in the case of those for the period of eight years from 1896 to 1903:—

Cause of Death.		Number of deaths in connection with which Coroner's Inquests were held.	
Class and Sub-class.	Designation.	1903.	Eight years, 1896-1903.
Class I. ..	Specific, Febrile, or Zymotic Diseases—		
Sub-class 1 ..	Miasmatic Diseases	2	8
Do. 2 ..	Diarrhœal Diseases	1	4
Do. 3 ..	Malarial Diseases	..	..
Do. 4 ..	Zoogenous Diseases	..	..
Do. 5 ..	Venereal Diseases	..	1
Do. 6 ..	Septic Diseases	1	2
Total, Class I.	.. ..	4	15
Class II. ..	Parasitic Diseases	..	2
Class III. ..	Dietetic Diseases	8	67
Class IV. ..	Constitutional Diseases	1	10
Class V. ..	Developmental Diseases	1	35
Class VI. ..	Local Diseases—		
Sub-class 1 ..	Diseases of the Nervous System	6	36
Do. 2 ..	Diseases of the Organs of Special Sense	..	..
Do. 3 ..	Diseases of the Circulatory System	24	132
Do. 4 ..	Diseases of the Respiratory System	4	25
Do. 5 ..	Diseases of the Digestive System	2	29
Do. 6 ..	Diseases of the Lymphatic System and Ductless Glands	..	..
Do. 7 ..	Diseases of the Urinary System	..	15
Do. 8 ..	Diseases of the Organs of Generation	..	..
Do. 9 ..	Diseases of Parturition ..	2	4
Do. 10 ..	Diseases of the Organs of Locomotion	..	..
Do. 11 ..	Diseases of the Integumentary System	..	..
Total, Class VI.	.. ..	38	241
Class VII. ..	Violence:—		
Sub-class 1 ..	Accident or Negligence ..	167	1,110
Do. 2 ..	Homicide	6	53
Do. 3 ..	Suicide	47	273
Do. 4 ..	Execution	..	8
Total, Class VII.	.. ..	220	1,444
Class VIII. ..	Ill-defined or not specified causes	12	92
Total, all causes	.. ..	284	1,906

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Australasian Death Rates.

The following table gives the various States of the Commonwealth and the Colony of New Zealand, arranged in ascending order of "crude" death-rates for 1903. The lowest death-rate for the year was 10·40 per 1,000 of mean population, experienced in New Zealand, while South Australia, with 10·79, occupied second place, the highest rate being that of Victoria, viz., 12·90:—

State or Colony.	Deaths, 1903.	
	Number.	Per 1,000 of Mean Population.
1. New Zealand	8,528	10·40
2. South Australia	3,951	10·79
3. New South Wales	16,497	11·60
4. Tasmania	2,116	11·92
5. Queensland	6,346	12·38
6. Western Australia	2,788	12·60
7. Victoria	15,595	12·90
Total, Australasia	55,821	11·80

In the next table the States of the Commonwealth and the Colony of New Zealand are arranged in descending order of the excess of births over deaths, per 1,000 of mean population, for 1903:—

State or Colony.	Excess of births over deaths, 1903.	
	Number.	Per 1,000 of mean population.
1. Western Australia	3,911	17·67
2. Tasmania	2,964	16·69
3. New Zealand	13,301	16·21
4. New South Wales	19,469	13·68
5. South Australia	4,557	12·45
6. Queensland	6,275	12·24
7. Victoria	13,974	11·56
Total, Australasia	64,451	13·63

It will thus be seen that whilst Western Australia had, for the year 1903, a higher death-rate than any other of the States except Victoria, it also had, owing to its relatively high birth-rate, the greatest proportionate increase of population by excess of births over deaths.

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European Death Rates.

The following table furnishes, for some of the principal European countries, the number of deaths per 1,000 of mean population for the year 1902:—

Country.	Number of deaths per 1,000 of mean population, 1902.
1. Norway	13·9
2. Denmark	14·7
3. Sweden	15·3
4. England and Wales	16·2
5. Holland	16·3
6. Scotland	17·2
7. Switzerland	17·2
8. Belgium	17·3
9. Ireland	17·5
10. Germany	19·4
11. France	19·5
12. Italy	22·1
13. Austria	24·7
14. Spain	26·0
15. Hungary	27·0

Particulars concerning these countries arranged in descending order of the excess of births over deaths per 1,000 of mean population for 1902 are as follows:—

Country.	Excess of births over deaths per 1,000 of mean population, 1902.
1. Germany	15·7
2. Holland	15·5
3. Norway	15·2
4. Denmark	14·7
5. Austria	12·3
6. England and Wales	12·3
7. Scotland	12·0
8. Hungary	11·8
9. Switzerland	11·5
10. Italy	11·2
11. Belgium	11·1
12. Sweden	11·0
13. Spain	9·5
14. Ireland	5·5
15. France	2·2

The particulars furnished in the above tables relative to European rates have been compiled from the 1902 Report of the Registrar General of England, and are in each case exclusive of registrations of still-born children. For the year 1902 the Western Australian death rate was 13·72, or less than that of Norway,

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which had the lowest rate on the European list; while for the same year this State's excess of births over deaths per 1,000 of mean population was 16·57, as compared with 15·7 for Germany, the European State occupying the highest position in that respect. It must be noted, however, that the rates here involved are "crude" rates, and are consequently, as pointed out on page 361, open to the objection that variations of age and sex in the respective populations are not taken into account.

(C.)—Marriages.

A high marriage rate is generally looked upon as one of the surest signs of prosperity, since, in bad times, people are usually not so readily prepared to undertake the responsibilities attaching to the married state. Viewed from this standpoint, Western Australia would appear to be by far the most prosperous State of the Australasian group, or at any rate to have held out, during recent years, the brightest prospects for the future; for, during the years 1894 to 1903, the marriage rate has been considerably higher than that of any of the other States. Allowance must be made, however, for the abnormal nature of the population of Western Australia as regards age distribution, and also as regards the relative proportions of married and single amongst the adult male population. A very large proportion of single men in the population would naturally tend, as these began to settle down and make homes for themselves, to cause an increase in the marriage rate, and the high rate experienced in Western Australia during the past seven years is probably due to a large extent to this cause.

The marriage rate is usually expressed in number per 1,000 of the mean population, but this rate is hardly satisfactory for the purpose of comparison. The proper basis on which to calculate marriage rates would undoubtedly be the number of eligible persons, that is, the number of persons over the age, say, of 15, who are either single, widowed, or divorced. As already remarked in the case of births and deaths, the difficulty of obtaining, for a series of years, reliable figures for such a basis, has prevented this more correct marriage rate from taking the place of the "crude rate" in statistical publications.

On page 394 will be found a table giving, for the year 1903, marriage rates at various ages, based on the results of the Census of 31st March, 1901.

The number of marriages registered in Western Australia during each of the ten years, 1894 to 1903, is given in the following table, and also the rate per 1,000 of mean population. From this table it will be seen that the marriage rate attained its maximum for the ten years in 1897, the rate for that year being the extraordinarily high one of 10·66. Since then, although a slight fall has been experienced, the rate has been fairly well maintained,

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and in 1903, when the lowest point for the seven years, 1897-1903, was reached, the rate still stood as high as 9·33.

Year.	Marriages.	
	Number.	Per 1,000 of mean population.
1894	482	6·42
1895	633	7·02
1896	1,077	8·78
1897	1,659	10·66
1898	1,674	9·91
1899	1,671	9·92
1900	1,781	10·07
1901	1,821	9·67
1902	2,024	9·84
1903	2,064	9·33
Total	14,886	9·46

Particulars relative to the Marriage Rate of this State from 1841 to the present time are as follows:—

Period.	Mean population for period.	Marriages registered during period.	
		Number.	Number per annum per 1,000 of mean population.
1841–45	3,567	187	10·49
1846–50	4,865	173	7·11
1851–55	9,244	497	10·75
1856–60	13,964	658	9·42
1861–65	17,786	765	8·60
1866–70	22,220	820	7·38
1871–75	25,789	835	6·74
1876–80	27,971	978	6·99
1881–85	31,508	1,115	7·08
1886–90	41,729	1,495	7·16
1891–95	66,750	2,332	6·99
1896–1900	158,538	7,862	9·92
1901–1903	205,115	5.909	9·60
1841–1903	43,413	23.626	8·64

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Marriages in Seasons.

The following table gives the number of marriages registered in each quarter of each of the seven years, 1897 to 1903:—

Year.	Number of Marriages registered in Quarter ended last day of:				Number of Marriages registered during the year.
	March.	June.	September.	December.	
1897	340	362	456	501	1,659
1898	326	478	446	424	1,674
1899	362	452	420	437	1,671
1900	407	490	447	437	1,781
1901	412	519	429	461	1,821
1902	485	560	470	509	2,024
1903	471	575	470	548	2,064
Total ..	2,803	3,436	3,138	3,317	12,694

The quarter ended 30th June is that in which marriages are most numerous, the average registrations in that quarter for the seven years, 1897 to 1903, being 491, as against 474; 448; and 400; in the December, September, and March quarters, respectively. In only one year out of the seven under review, viz., in 1897, was the record for the June quarter exceeded.

The following table shows the average number of marriages registered in each month during the six years, 1898 to 1903:—

Month.	Average number of marriages registered (1898 to 1903).	
	Monthly average.	Daily average.
January	145	4·68
February	142	5·07
March	123	3·97
April	185	6·17
May	166	5·35
June	161	5·37
July	144	4·65
August	153	4·94
September	151	5·03
October	153	4·94
November	144	4·80
December	172	5·55
Average for the year ..	153	5·04

It will be seen that the months of April and December are those in which marriages are most numerous, the daily averages being 6·17 and 5·55 respectively, whilst the month of March, with a daily average of 3·97, is that in which fewest marriages take place. The lowness of the March record is, to a large extent, due to the fact that Lent, which, by some denominations, is regarded as a season of abstention from marriage, occurs in March. Marriages which, in the ordinary course, would have taken place in March,

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are thus deferred to the succeeding month, thereby increasing the total for April.

Metropolitan and Extra-Metropolitan Marriage Rates.

The attached table furnishes a comparison of the marriage rates of the Metropolitan and Extra-Metropolitan Districts of Western Australia for each of the six years, 1898 to 1903:—

Year.	Marriages registered.					
	Perth and Suburbs.		Remainder of State.		The whole State.	
	Number.	Per 1,000 of mean population.	Number.	Per 1,000 of mean population.	Number.	Per 1,000 of mean population.
1898	588	16·43	1,086	8·15	1,674	9·91
1899	482	13·93	1,189	8·88	1,671	9·92
1900	531	15·00	1,250	8·83	1,781	10·07
1901	573	15·42	1,248	8·26	1,821	9·67
1902	620	15·19	1,404	8·51	2,024	9·84
1903	677	14·98	1,387	7·88	2,064	9·33
Total ..	3,471	15·18	7,564	8·40	11,035	9·77

For each of the years under review the marriage rate of Perth and suburbs has greatly exceeded that of the remainder of the State, the excess in the average rate for the six years being no less than 6·78 per 1,000 of mean population. This higher marriage rate of the Metropolis may be accounted for partly by the age and sex constitution of the respective populations, partly by the conditions of city life being more conducive to matrimonial alliance, and partly by the fact that many couples usually residing outside the Metropolis proceed thither to be married, thereby increasing the Metropolitan and decreasing the Extra-Metropolitan marriage rates.

Territorial Divisions.

The following table furnishes, for each of the Territorial Divisions defined on page 288, the number of marriages and the marriage rates for the years 1901 to 1903:—

Division.	Marriages.					
	1901.		1902.		1903.	
	Number.	Per 1,000 of mean population.	Number.	Per 1,000 of mean population.	Number.	Per 1,000 of mean population.
Metropolitan ..	878	12·73	977	12·96	1,030	12·67
South-Western ..	344	6·50	385	6·66	430	6·91
Central and Eastern	576	9·48	641	9·66	587	8·24
Northern & North-Western ..	23	4·07	21	3·41	17	2·58
The whole State ..	1,821	9·67	2,024	9·84	2,064	9·33

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Mark Signatures.

Shortly after the inauguration of civil registration in England, Dr. Farr introduced in the returns, issued by the Registrar General, columns showing the number of cases in which one or both of the contracting parties signed the marriage register with a mark, the object he had in view being to ascertain, by a comparison of the ratio which the number of mark signatures bore to the total number of marriages from year to year, the variation in the elementary education of the people. Similar returns are prepared in the Australian States, and the Colony of New Zealand, and the results in Western Australia for the ten years 1894–1903 are as follows:—

Year.	Males.		Females.		Persons.	
	Number.	Percentage on number of Males married.	Number.	Percentage on number of Females married.	Number.	Percentage on number of Persons married.
1894 ..	10	2·07	10	2·07	20	2·07
1895 ..	12	1·90	13	2·05	25	1·97
1896 ..	33	3·06	31	2·88	64	2·97
1897 ..	14	0·84	21	1·27	35	1·05
1898 ..	10	0·60	24	1·43	34	1·02
1899 ..	15	0·90	22	1·32	37	1·11
1900 ..	20	1·12	23	1·29	43	1·21
1901 ..	18	0·99	18	0·99	36	0·99
1902 ..	12	0·59	16	0·79	28	0·69
1903 ..	10	0·48	21	1·02	31	0·75
Total ..	154	1·03	199	1·34	353	1·19

Celebration of Marriages.

In the following table is shown the number of marriages celebrated during 1903, and the ten years 1894–1903, by ministers of the various denominations and by District Registrars, and also in each case the percentage on the total number of marriages:—

Denomination, etc.	Marriages.			
	1903.		Ten years, 1894-1903.	
	Number.	Percentage on total.	Number.	Percentage on total.
Church of England	651	31·54	4,724	31·74
Roman Catholic	355	17·20	2,802	18·82
Methodist	444	21·51	3,124	20·99
Presbyterian	190	9·21	1,381	9·28
Congregational	99	4·80	778	5·23
Salvation Army	12	0·58	96	0·64
Baptist	60	2·91	245	1·65
Church of Christ	20	0·97	111	0·74
Seventh Day Adventist	3	0·14	9	0·06
Lutheran	10	0·48	21	0·14
Church of the People	..	..	3	0·02
Hebrew	5	0·24	40	0·27
Mahomedan	..	..	2	0·01
District Registrars	215	10·42	1,550	10·41
Total	2,064	100.00	14,886	100·00

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It may be of interest to note that the percentage shown above cannot be taken as giving even a rough approximation to the proportion of the whole population belonging to each denomination, since it has been found, where comparison was possible, that the two differ materially. The following table shows the number of persons returned at the Census taken on 31st March, 1901, as belonging to each of the denominations specified, and a comparison of the percentages on total population with those given above for 1903, and for the ten years 1894–1903, in the table relating to marriages, shows that the number of adherents of some of the denominations was altogether out of proportion to the number of marriages performed by their ministers :—

Denomination.	Adherents at date of Census, 31st March, 1901.	
	Number.	Percentage on total specified.
Church of England	75,654	42·02
Methodist	24,540	13·63
Presbyterian	14,707	8·17
Congregational	4,404	2·45
Baptist	2,914	1·62
Church of Christ	1,045	0·58
Salvation Army	1,690	0·94
Lutheran	1,703	0·94
Seventh Day Adventist	211	0·12
Unitarian	150	0·08
Protestant (undefined)	1,847	1·03
Roman Catholic	40,584	22·54
Greek Catholic	172	0·09
Catholic (undefined)	1,309	0·73
Other Christians	561	0·31
Hebrew	1,259	0·70
Mahomedan	1,191	0·66
Others, specified	6,104	3·39
Total specified	180,045	100·00
Object to state and unspecified	4,079	..
Total	184,124	..

Ages at Marriage.

The following table shows the mean of the recorded ages at marriage of all persons whose marriages were registered in each of the four years 1898 to 1903 :—

Year.	Mean of the recorded ages at marriage.		Mean Excess of Husband's age over Wife's.
	Husbands.	Wives.	
1898	28·96	25·01	3·95
1899	29·19	25·13	4·06
1900	29·12	24·99	4·13
1901	29·43	25·31	4·12
1902	29·54	25·34	4·20
1903	29·52	25·44	4·08

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It will be seen from the above table that, as far as can be ascertained from the information available, there appears to be in Western Australia a tendency for the average age at marriage, both of husbands and wives, to increase, and also, though to a smaller extent, for the difference between the ages of the parties to increase. An experience limited to six years is, however, too restricted to allow of any trustworthy conclusions on this point being drawn.

The following table furnishes details respecting the ages at the time of marriage of wives and husbands whose marriages were registered during 1903:—

Ages.	Wives.	Husbands.
15	4	..
16	11	..
17	55	1
18	91	1
19	118	9
20	131	15
21 and under 25	681	433
25 „ 30	553	749
30 „ 35	242	477
35 „ 40	105	217
40 „ 45	37	97
45 „ 50	20	45
50 „ 55	9	9
55 „ 60	3	3
60 „ 65	2	3
65 „ 70	1	..
70 „ 75	..	3
75 „ 80	1	2
Total ..	2,064	2,064

The following table gives for certain groups the relative ages of husbands and wives whose marriages were registered during 1903:—

Ages of Husbands.	Ages of Wives.				Total Husbands
	Under 21.	21 and under 40.	40 and under 50.	50 and upwards.	
Under 21	20	6	..	..	26
21 and under 40 ..	381	1,475	19	1	1,876
40 „ 50 ..	9	94	32	7	142
50 and upwards ..	..	6	6	8	20
Total Wives ..	410	1,581	57	16	2,064

It will be observed from the foregoing tables that out of 2,064 females married, as many as 410, or about 20 per cent., were under the age of 21, whilst in the case of males only 26, or 1¼ per cent., were minors, and of these no fewer than 20 married wives who were also minors. In 1,475 cases, or slightly less than 71½ per cent. of the total, both the contracting parties were between the ages of 21 and 40.

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The following table furnishes particulars relative to the marriages of minors for each of the seven years 1897 to 1903:—

Year.	Marriages of Minors.					
	Males.	Females.	Total.	Percentage of Minors married on total number married.		
				Males.	Females.	Persons.
	No.	No.	No.	%	%	%
1897	15	258	273	0·90	15·55	8·23
1898	15	301	316	0·90	17·98	9·44
1899	20	324	344	1·20	19·39	10·29
1900	33	356	389	1·85	19·99	10·92
1901	30	338	368	1·65	18·56	10·10
1902	35	393	428	1·73	19·42	10·57
1903	26	410	436	1·26	19·86	10·56
Total ..	174	2,380	2,554	1·37	18·75	10·06

On the assumption that the distribution as regards age and conjugal condition of the population enumerated at the Census of 31st March, 1901, will apply to the mean population for 1903, and allowing, on the lines mentioned on page 357, for a proportionate distribution of those unspecified on the Census and Registration Returns, the following table shows for various age-groups the number married during the year, per 1,000 eligible males and females respectively:—

Age-group.	Male marriage rate, 1903.	Female marriage rate, 1903.
	Number of Males married during 1903 per 1,000 of unmarried male mean population in each age-group.	Number of Females married during 1903 per 1,000 of unmarried female mean population in each age-group.
15 years and under 16	..	3
16 „ „ 17	..	8
17 „ „ 18	1	42
18 „ „ 19	1	68
19 „ „ 20	5	98
20 „ „ 21	7	118
21 „ „ 25	41	168
25 „ „ 30	56	163
30 „ „ 35	48	144
35 „ „ 40	31	96
40 „ „ 45	21	51
45 „ „ 50	18	37
50 „ „ 55	5	16
55 „ „ 60	3	6
60 „ „ 65	3	4
65 years and upwards	3	2

Conjugal Condition of Contracting Parties.

From the following table, which shows the relative conjugal condition of all persons whose marriages were registered during

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1903, it will be seen that out of the total of 2,064 marriages, 1,817, or about 88 per cent., were contracted between bachelors and spinsters:—

Conjugal condition.	Brides.			Total Bridegrooms.
	Spinsters.	Widows.	Divorced.	
Bridegrooms: Bachelors	1,817	113	9	1,939
Bridegrooms: Widowers	85	33	.	118
Bridegrooms: Divorced	5	2	..	7
Total Brides ..	1,907	148	9	2,064

The attached table for the year 1903 gives, for each conjugal condition, the number of marriages per 1,000 of the mean population of such condition:—

Conjugal condition.	Estimated mean population of each conjugal condition for 1903.	Number of marriages during 1903.	Number of marriages per 1,000 of mean population of each conjugal condition.
Males—Bachelors (20 years and upwards)	51,640	1,939	38
Widowers	3,480	118	34
Divorced	130	7	54
Females—Spinsters (17 years and upwards)	15,030	1,907	127
Widows	3,840	148	39
Divorced	50	9	180

The estimated mean populations used in this table for the several conjugal conditions have been computed on the basis of the results obtained at the Census of 31st March, 1901.

The mean ages at marriage for contracting parties of each conjugal condition, in each of the six years 1898 to 1903, were as follows:—

Conjugal condition.	Mean of the recorded ages at Marriage.					
	1898.	1899.	1900.	1901.	1902.	1903.
	Years.	Years.	Years.	Years.	Years.	Years.
Males—Bachelors	28·25	28·43	28·45	28·73	28·78	28·78
Widowers ..	39·03	41·30	41·03	39·11	40·29	41·24
Divorced ..	41·50	37·40	35·63	40·50	37·29	35·43
Females—Spinsters ..	24·23	24·34	24·29	24·41	24·50	24·48
Widows ..	34·72	35·27	34·26	36·13	35·83	37·45
Divorced ..	35·00	29·57	35·29	30·82	32·69	31·33

Marriage Law.

No fewer than nine Acts or Amending Acts for regulating the celebration of marriage have at various times been passed by the

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legislature of Western Australia, the earliest being that of 1841 (4 and 5 Vict., No. 10). Each of the earlier Acts was repealed by a succeeding one, so that at present there are only two Western Australian Acts in force relating to marriage, viz., 58 Vict., No. 11, in which the marriage law was consolidated, and 62 Vict., No. 23, which is an amendment of the preceding Act, and relates to the marriage of Jews. Two Imperial Acts, however, viz., 5 and 6 Gul. IV., c. 54, and 21 and 22 Vict., c. 93, have also been adopted by the legislature, the one under 7 Vict., No. 13, the other under 31 Vict., No. 8, and have not since been repealed.

Under Section 51 of the "Commonwealth of Australia Constitution Act" power is given to the Commonwealth Parliament to make laws with respect to marriage, but up to the present time the subject has not been dealt with by that body. In consideration of the great importance of securing uniformity in this matter throughout the Commonwealth, it certainly appears desirable that Federal legislation for that purpose should be introduced as early as possible. As regards Registration of Births, Deaths, and Marriages, also, it would be productive of beneficial results if the systems in vogue in the several States were rendered uniform either by means of Federal legislation or by mutual arrangement on the part of the authorities of the several States, as, owing to the present means of rapid and easy transit by sea and rail, the populations of the several Australian States are continually interchanging, and it appears to be only reasonable that, in matters of so general a nature, the procedure of all the States concerned should be made as nearly identical as local circumstances will admit, thus avoiding the inconvenience and misunderstandings so frequently now experienced.

Australasian Marriage Rates.

In the annexed table the various States of the Commonwealth and the Colony of New Zealand have been arranged in order of marriage rates for 1903. Western Australia, with 9·33, is far above any of the others, the next in order being New Zealand, with 8·23, while Queensland with 5·72 is the lowest:—

State or Colony.	Marriages, 1903.	
	Number.	Per 1,000 of mean population.
1.—Western Australia	2,064	9·33
2.—New Zealand	6,748	8·23
3.—Tasmania	1,344	7·57
4.—New South Wales	9,759	6·86
5.—Victoria	7,605	6·29
6.—South Australia	2,272	6·21
7.—Queensland	2,933	5·72
Total Australasia ..	32,725	6·92

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European Marriage Rates.

The number of marriages per 1,000 of mean population in each of the principal European countries for the year 1902 is as follows:—

Country.	Number of marriages per 1,000 of mean population, 1902.
1.—Hungary	8·6
2.—Spain	8·6
3.—Belgium	8·1
4.—Germany	7·9
5.—England and Wales	7·9
6.—Austria	7·8
7.—Holland	7·6
8.—France	7·5
9.—Switzerland	7·5
10.—Italy	7·2
11.—Denmark	7·1
12.—Scotland	7·0
13.—Norway	6·4
14.—Sweden	5·9
15.—Ireland	5·2

From this table, which has been compiled from the 1902 Report of the Registrar General of England, it will be seen that the Western Australian "crude" marriage rate for 1902—viz., 9·84—was much in excess of any of the enumerated European countries; Hungary and Spain, which headed the list, having a rate of only 8·6. As previously pointed out, the "crude" marriage rate is affected considerably by the age and sex constitution of the population.

6.—WESTERN AUSTRALIAN LIFE TABLE.

By C. H. Wickens, A.I.A., Departmental Actuary, Statistical and Registry Department.

Taking into consideration the importance of a Life Table, whether as an instrument for the computation of the values of payments dependent on the contingencies of human life, or as a means of correctly interpreting the information conveyed by the collected mortality statistics of any country, it is somewhat surprising that throughout Australasia there has, up to the present time, been only one such table officially constructed in connection

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with the taking of a Census, viz., that of New South Wales for 1891. Several tables of considerable merit have, from time to time, been privately constructed by persons interested in the science of life contingencies, the data being usually those obtained from the Census and registration returns of New South Wales and Victoria, while the figures for Queensland and Tasmania have, on one or two occasions, also been used. New Zealand, too, has had several private or semi-private investigations made concerning her rates of mortality; but, as far as can be ascertained, no such table has ever been compiled on the basis of South Australian experience, and certainly none has ever previously been published relating to Western Australia.

The data from which the present Life Table of Western Australia has been compiled are: (1) the mean population for each month of the three years of which the date of the Census (31st March, 1901) occupies the centre, that is, for the three years from 1st October, 1899, to 30th September, 1902; (2) the number of deaths at each integral age which were registered during the same three years; and (3) the age distribution of the population at the date of the Census; sexes being distinguished in each case.

In making use of the Census and registration returns for the purpose of constructing a Life Table, several different methods are open to the compiler. The prevailing tendency in both Census and registration returns for the numbers to preponderate at the quinquennial and decennial ages is well known, and has led in some countries to the tabulation of age particulars for no groups smaller than quinquennial, or even in some cases decennial; details for individual ages being obtained, if required, by some method of interpolation or graduation. In the case of the Western Australian data made use of on the present occasion, the tendency for the figures to cluster at ages which are multiples of 5 was strongly in evidence, and, after careful consideration of the various methods of deducing rates of mortality from the original data, that described in the following pages was adopted, and, judging by the results attained, appears to have worked very satisfactorily.

In both Census and registration returns instances occurred in which the ages had not been specified, though in neither set of returns was the number of such omissions large. In the case of the Census returns, the persons of unspecified age, numbering 315, were, by means of a careful examination of the other particulars specified on the various Schedules, divided into the two classes of adults and children, there being 292 of the former and 23 of the latter. The 292 unspecified adults were then distributed over the ages from 21 to 69, inclusive, in proportion to the numbers actually returned at those ages, the 23 unspecified children being similarly distributed over the ages from 5 to 14, inclusive. In the case of the registration returns, out of a total of 7,475 death registrations (4,928 male and 2,547 female), only 33—29 male and 4 female—were defective as regards age specification. These were propor-

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tionately distributed over the ages from 5 upwards, the totals for the several quinquennial age-groups constituting the basis of distribution.

The population on 1st October, 1899, and that at the end of each of the 36 months comprised in the period under investigation, were obtained by means of the records of births, deaths, arrivals, and departures taken in conjunction with the results of the Census, the monthly mean population being thence deduced by taking for each month half the sum of the population at the beginning and end of such month. These means, on being totalled and divided by 12, gave the number of years of life spent in the State between 1st October, 1899, and 30th September, 1902, amounting to 344,926 years of male and 216,986 of female life. The assumption was then made that the age distribution, which had been ascertained at the Census of 31st March, 1901, taken in the centre of this period, would apply to the mean population for the period, and these years of life were distributed over the various ages in proportion to the Census results, as adjusted for unspecified ages.

As the particulars relative to deaths registered during the period were also tabulated for single ages, it will be seen that the data necessary for the computation of the probabilities of life for individual ages were now available. Owing, however, to the comparative paucity of the data, and the tendency before mentioned for accumulations at quinquennial ages, the particulars exhibited considerable irregularity and it was consequently deemed advisable to adopt some method of grouping before proceeding to compute the required probabilities.

A method sometimes made use of in connection with the construction of Life Tables of this nature is that of deducing from the requisite statistics tabulated in quinquennial or other groups the death rate for each such group, and, on the assumption that the rates so obtained may be taken as those for the central ages in the various groups, of computing, by means of interpolation, particulars for individual ages. Thus, from the number of years of life spent in the age-group say, of "10 and under 15," and the number of deaths occurring therein, the death rate for the group can be computed, and this rate is assumed to be that for age 12—the central age of the group. Similarly the rates for ages 17, 22, 27, etc., are obtained, and the table completed by interpolation.

As, in the present instance, details for individual ages were available both for years of life and for deaths, it appeared desirable to carry this system to its logical conclusion, and instead of deducing rates for every fifth age in the manner mentioned, to make every age, from five years upwards, the central age of a quinquennial group, and thus obtain for each age, without interpolation, an approximate death rate. The work of quinquennial grouping was very simply performed by placing in a column the particulars to be grouped, and then adding them in fives with the help of a slip of paper so cut as

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to expose, at one time, only the five items to be added together, and to indicate the line in the adjacent column on which the total should be placed.

The rate obtained in the manner described gives, approximately, for each age what is known as the "central death rate," and denoted by the symbol m_x, being the ratio of the number of deaths between the ages of x and $x + 1$ to the corresponding number of years of life spent between those ages. From this by means of the formula $p_x = \frac{2-m_x}{2+m_x}$, was deduced for each age from 5 upwards the value (ungraduated) of p_x, that is, the probability that a person aged x would live to attain the age $x + 1$.

For ages under 5 the method just described is hardly suitable, and the values p_x for ages 0 to 4, inclusive, were consequently computed by Professor Pell's method, which takes into account the number of births. In the case of the table for males, the junction of the two sets of p values was perfectly satisfactory; but in the female table, as the Pell values did not join as smoothly as was to be desired, the value of p_4 was interpolated, the functions used in the interpolation being p_7, p_6, p_5, and p_3. Having, therefore, obtained the values of p_x from age 0 upwards, if any assumed number of children born be inserted in a table against age 0, successive multiplications by the values of p_x will give the number who, out of the assumed number born, will attain each succeeding age, and will thus furnish the column headed l_x in the Life Table. The differences between the successive values in this column evidently give for each age the number who attain that age, but fail to attain the next higher one. These differences form the column "dying," headed d_x in the Life Table.

In the case of all life tables compiled from original observations, it is found necessary to apply to the computed results some method of graduation for the purpose of smoothing out the irregularities which invariably exist in the ungraduated figures, the object aimed at being the introduction of that degree of smoothness in the tables which the uses to which they may be put demand, without at the same time causing the results to differ very materially from those obtained by the original observations.

After consideration of the various graduation methods, it was decided to adopt the well-known one used by Mr. Woolhouse in his graduation of the Institute of Actuaries H^M and other tables, the actual work of graduation being performed by the columnar process. The function operated upon was d_x from age 5 upwards.

The details available for the advanced ages were, however, so meagre that it was considered advisable to complete the table by making use, for this period, of probabilities of life deduced from a more extensive Australian experience, and, consequently, the par-

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ticulars in the male table from age 72 upwards, and in the female from 64 upwards, have been computed on the basis of the table of Messrs. Moors and Day, compiled from the 1891 Census returns of New South Wales and Victoria, and the death returns for the four years of which that Census date occupied the centre.

From the graduated values of d_x the column l_x was compiled by summation, and the values of p_x were thence derived by means of the formula $p_x = \frac{l_{x+1}}{l_x}$.

The column headed q_x furnishes the probability that a person aged x will die before attaining the age $x + 1$. It is the complement of p_x, and is consequently obtained by the formula $q_x = 1 - p_x$.

The following view of the p_x and q_x columns may, perhaps, render their meaning clearer to persons not versed in the technicalities of the life table. At age 50 in the male table, for instance, the value of p_x is ·98233, and that of q_x is ·01767. This may be interpreted as meaning that out of 100,000 males alive on their fiftieth birthday 98,233 will, in any case in which the mortality shown in the table is experienced, live to be 51, while 1,767 will die before attaining that age.

The last column in the table is that which contains what is known as the "expectation of life" or "average after-lifetime," the former being the name most frequently applied to the function, although the latter more accurately expresses its nature. As a misconception of the meaning of the term "expectation of life" appears to be not uncommon, it may be desirable to state here distinctly what is intended to be conveyed by its use. The "expectation of life," at any age, is the number of years which, on the average, will, in accordance with the mortality shown in the particular life table, be subsequently lived by the persons who attain that age. Very few of them will live exactly that number of years; many will live far longer; many others far less; but, taking one with another, the *average* future lifetime or "expectation of life" of those who attain any specified age is that shown against such age in the column headed $\mathring{e}_x$. The formula for the computation of this function is $\mathring{e}_x = \frac{1}{2} + \frac{l_{x+1} + l_{x+2} + l_{x+3} + \text{-----}}{l_x}$. The values were obtained by summing the column l_x from the bottom upwards so as to show against age x the value of $l_{x+1} + l_{x+2} + \text{-----}$; division by l_x and the addition of $\frac{1}{2}$, in each case, giving the required results.

The various operations involving multiplication and division in the course of the construction of the tables were performed partly by means of logarithms and partly by the arithmometer, Fuller's Spiral Slide Rule being also greatly used, especially for checking purposes.

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Western Australian Life Table, 1901 (*Males*).

Age. x	Living. l_x	Dying. d_x	Probability of surviving one year. p_x	Probability of dying in one year. q_x	Complete expectation of life, or average after-lifetime. e_x
0	10,000	1,473	·85270	·14730	47·85
1	8,527	300	·96482	·03518	55·03
2	8,227	84	·98979	·01021	56·02
3	8,143	55	·99325	·00675	55·59
4	8,088	34	·99580	·00420	54·97
5	8,054	27	·99665	·00335	54·20
6	8,027	22	·99726	·00274	53·38
7	8,005	20	·99750	·00250	52·52
8	7,985	18	·99775	·00225	51·65
9	7,967	16	·99799	·00201	50·77
10	7,951	15	·99811	·00189	49·87
11	7,936	15	·99811	·00189	48·97
12	7,921	15	·99811	·00189	48·06
13	7,906	16	·99798	·00202	47·15
14	7,890	18	·99772	·00228	46·24
15	7,872	20	·99746	·00254	45·35
16	7,852	24	·99694	·00306	44·46
17	7,828	28	·99642	·00358	43·60
18	7,800	34	·99564	·00436	42·75
19	7,766	39	·99498	·00502	41·93
20	7,727	45	·99418	·00582	41·14
21	7,682	50	·99349	·00651	40·38
22	7,632	54	·99292	·00708	39·64
23	7,578	57	·99248	·00752	38·92
24	7,521	59	·99216	·00784	38·21
25	7,462	60	·99196	·00804	37·51
26	7,402	59	·99203	·00797	36·81
27	7,343	57	·99224	·00776	36·10
28	7,286	56	·99231	·00769	35·38
29	7,230	54	·99253	·00747	34·65
30	7,176	54	·99247	·00753	33·91
31	7,122	54	·99242	·00758	33·16
32	7,068	56	·99208	·00792	32·41
33	7,012	58	·99173	·00827	31·67
34	6,954	60	·99137	·00863	30·93
35	6,894	62	·99101	·00899	30·19
36	6,832	63	·99078	·00922	29·46
37	6,769	64	·99055	·00945	28·73
38	6,705	65	·99031	·00969	28·00
39	6,640	67	·98991	·01009	27·27
40	6,573	70	·98935	·01065	26·54
41	6,503	74	·98862	·01138	25·82
42	6,429	79	·98771	·01229	25·11
43	6,350	83	·98693	·01307	24·42
44	6,267	86	·98628	·01372	23·74
45	6,181	89	·98560	·01440	23·06
46	6,092	91	·98506	·01494	22·39
47	6,001	93	·98450	·01550	21·72
48	5,908	95	·98392	·01608	21·05
49	5,813	98	·98314	·01686	20·39
50	5,715	101	·98233	·01767	19·73
51	5,614	105	·98130	·01870	19·08
52	5,509	109	·98021	·01979	18·43
53	5,400	115	·97870	·02130	17·79
54	5,285	121	·97711	·02289	17·17

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Western Australian Life Table, 1901 (*Males*)—continued.

Age. x	Living. l_x	Dying. d_x	Probability of surviving one year. p_x	Probability of dying in one year. q_x	Complete expectation of life, or average after-lifetime. $\mathring{e}_x$
55	5,164	127	·97541	·02459	16·56
56	5,037	133	·97360	·02640	15·97
57	4,904	139	·97166	·02834	15·39
58	4,765	144	·96978	·03022	14·82
59	4,621	147	·96819	·03181	14·27
60	4,474	148	·96692	·03308	13·72
61	4,326	149	·96556	·03444	13·17
62	4,177	151	·96385	·03615	12·62
63	4,026	153	·96200	·03800	12·08
64	3,873	157	·95946	·04054	11·54
65	3,716	163	·95614	·04386	11·00
66	3,553	170	·95215	·04785	10·48
67	3,383	176	·94798	·05202	9·99
68	3,207	182	·94325	·05675	9·51
69	3,025	186	·93851	·06149	9·05
70	2,839	189	·93343	·06657	8·61
71	2,650	191	·92792	·07208	8·19
72	2,459	188	·92355	·07645	7·78
73	2,271	186	·91810	·08190	7·39
74	2,085	184	·91175	·08825	7·00
75	1,901	182	·90426	·09574	6·63
76	1,719	179	·89587	·10413	6·28
77	1,540	175	·88636	·11364	5·95
78	1,365	167	·87766	·12234	5·65
79	1,198	158	·86811	·13189	5·37
80	1,040	146	·85962	·14038	5·11
81	894	133	·85123	·14877	4·86
82	761	119	·84363	·15637	4·62
83	642	106	·83489	·16511	4·38
84	536	94	·82463	·17537	4·15
85	442	82	·81448	·18552	3·93
86	360	71	·80278	·19722	3·71
87	289	61	·78893	·21107	3·50
88	228	51	·77632	·22368	3·30
89	177	42	·76271	·23729	3·10
90	135	34	·74815	·25185	2·91
91	101	27	·73267	·26733	2·73
92	74	21	·71622	·28378	2·54
93	53	16	·69811	·30189	2·35
94	37	12	·67568	·32432	2·15
95	25	9	·64000	·36000	1·94
96	16	6	·62500	·37500	1·75
97	10	4	·60000	·40000	1·50
98	6	3	·50000	·50000	1·17
99	3	2	·33333	·66667	·83
100	1	1	·00000	1·00000	·50

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Western Australian Life Table, 1901 (*Females*).

Age. x	Living. l_x	Dying. d_x	Probability of surviving one year. p_x	Probability of dying in one year. q_x	Complete expectation of life, or average after-lifetime. $\mathring{e}_x$
0	10,000	1,206	·87940	·12060	52·99
1	8,794	258	·97066	·02934	59·19
2	8,536	60	·99297	·00703	59·97
3	8,476	44	·99481	·00519	59·39
4	8,432	33	·99609	·00391	58·69
5	8,399	24	·99714	.00286	57·92
6	8,375	19	·99773	·00227	57·09
7	8,356	17	·99797	·00203	56·22
8	8,339	15	·99820	·00180	55·33
9	8,324	13	·99844	·00156	54·43
10	8,311	13	·99844	·00156	53·51
11	8,298	14	·99831	·00169	52·60
12	8,284	16	·99807	·00193	51·68
13	8,268	18	·99782	·00218	50·78
14	8,250	21	·99745	·00255	49·89
15	8,229	24	·99708	·00292	49·02
16	8,205	27	·99671	·00329	48·16
17	8,178	31	·99621	·00379	47·32
18	8,147	34	·99583	·00417	46·50
19	8,113	38	·99532	·00468	45·69
20	8,075	42	.99480	·00520	44·90
21	8,033	44	.99452	·00548	44·13
22	7,989	46	.99424	·00576	43·37
23	7,943	47	.99408	·00592	42·62
24	7,896	47	.99405	·00595	41·87
25	7,849	47	·99402	·00598	41·12
26	7,802	47	·99398	·00602	40·37
27	7,755	47	·99394	·00606	39·61
28	7,708	49	·99364	·00636	38·85
29	7,659	51	·99334	·00666	38·09
30	7,608	53	·99303	·00697	37·34
31	7,555	54	·99285	·00715	36·60
32	7,501	55	·99267	·00733	35·86
33	7,446	56	·99248	·00752	35·12
34	7,390	56	·99242	·00758	34·39
35	7,334	56	·99236	·00764	33·64
36	7,278	57	·99217	·00783	32·90
37	7,221	58	·99197	·00803	32·15
38	7,163	61	·99148	·00852	31·41
39	7,102	64	·99099	·00901	30·68
40	7,038	67	·99048	·00952	29·95
41	6,971	68	·99025	·00975	29·23
42	6,903	69	·99000	·01000	28·52
43	6,834	68	·99005	·00995	27·80
44	6,766	65	·99039	·00961	27·07
45	6,701	62	·99075	·00925	26·33
46	6,639	61	·99081	·00919	25·57
47	6,578	60	·99088	·00912	24·81
48	6,518	61	·99064	·00936	24·03
49	6,457	63	·99024	·00976	23·25
50	6,394	66	·98968	·01032	22·48
51	6,328	70	·98894	·01106	21·71
52	6,258	75	·98802	·01198	20·94
53	6,183	82	·98674	·01326	20·19
54	6,101	89	·98541	·01459	19·46

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Western Australian Life Table, 1901 (*Females*)—continued.

Age. x	Living. l_x	Dying. d_x	Probability of surviving one year. p_x	Probability of dying in one year. q_x	Complete expectation of life, or average after-lifetime. $\mathring{e}_x$
55	6,012	95	·98420	·01580	18·74
56	5,917	99	·98327	·01673	18·03
57	5,818	102	·98247	·01753	17·33
58	5,716	103	·98198	·01802	16·63
59	5,613	105	·98129	·01871	15·92
60	5,508	111	·97985	·02015	15·22
61	5,397	121	·97758	·02242	14·52
62	5,276	132	·97498	·02502	13·84
63	5,144	143	·97220	·02780	13·18
64	5,001	154	·96921	·03079	12·55
65	4,847	165	·96596	·03404	11·93
66	4,682	176	·96241	·03759	11·33
67	4,506	189	·95806	·04194	10·76
68	4,317	202	·95321	·04679	10·20
69	4,115	215	·94775	·05225	9·68
70	3,900	225	·94231	·05769	9·19
71	3,675	233	·93660	·06340	8·72
72	3,442	238	·93085	·06915	8·28
73	3,204	239	·92541	·07459	7·85
74	2,965	238	·91973	·08027	7·45
75	2,727	235	·91382	·08618	7·05
76	2,492	231	·90730	·09270	6·67
77	2,261	226	·90004	·09996	6·30
78	2,035	220	·89189	·10811	5·94
79	1,815	213	·88264	·11736	5·60
80	1,602	204	·87266	·12734	5·28
81	1,398	193	·86195	·13805	4·98
82	1,205	179	·85145	·14855	4·70
83	1,026	164	·84016	·15984	4·43
84	862	148	·82831	·17169	4·18
85	714	131	·81653	·18347	3·94
86	583	114	·80446	·19554	3·71
87	469	98	·79104	·20896	3·49
88	371	83	·77628	·22372	3·28
89	288	69	·76042	·23958	3·09
90	219	56	·74429	·25571	2·90
91	163	44	·73006	·26994	2·73
92	119	34	·71429	·28571	2·55
93	85	26	·69412	·30588	2·37
94	59	20	·66102	·33898	2·19
95	39	14	·64103	·35897	2·06
96	25	9	·64000	·36000	1·94
97	16	6	·62500	·37500	1·75
98	10	4	·60000	·40000	1·50
99	6	3	·50000	·50000	1·17
100	3	2	·33333	·66667	·83
101	1	1	·00000	1·00000	·50

It will be seen that for all ages the female expectation of life is higher than the male, the difference being 5·14 at birth (age 0), 4·16 at age 1, and at subsequent successive ages a continuously diminishing quantity amounting to 2·75 at age 50 and 0·58 at 70.

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An interesting point connected with the relative mortality of males and females disclosed by these tables is the fact that, according to the Western Australian experience, for ages 12 to 17, inclusive, the probability of living a year is greater amongst males than amongst females; this being the only period of life, with the exception of a small portion at advanced ages, at which the male probabilities of living preponderate.

In the cases both of the male and of the female table, the probability of surviving a year increases gradually for the first nine or 10 years, and subsequently decreases with advancing age. In neither table, however, is the decrease absolutely continuous, the male probabilities of living exhibiting a slight increase for ages 26 to 29 inclusive, and the female table for ages 43 to 47, inclusive. From these respective points onwards, the probabilities of living diminish consistently to the end of the tables.

The following table furnishes, for quinquennial ages, a comparison of the expectations of life deduced from the Western Australian experience, with those given in the New South Wales table of 1891 and the English Life Tables Nos. 3 and 5:—

Age.	Expectation of Life. ($\mathring{e}_x$).							
	Western Australian Life Table, 1901.		New South Wales Life Table, 1891.		English Life Table, No. 3, 1838–54.		English Life Table, No. 5, 1881–90.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
0	47·85	52·99	49·60	52·90	39·91	41·85	43·66	47·18
5	54·20	57·92	54·90	57·42	49·71	50·33	52·75	54·92
10	49·87	53·51	50·89	53·39	47·05	47·67	49·00	51·10
15	45·35	49·02	46·40	48·78	43·18	43·90	44·47	46·55
20	41·14	44·90	42·16	44·46	39·48	40·29	40·27	42·42
25	37·51	41·12	38·16	40·34	36·12	37·04	36·28	38·50
30	33·91	37·34	34·30	36·42	32·76	33·81	32·52	34·76
35	30·19	33·64	30·51	32·64	29·40	30·59	28·91	31·16
40	26·54	29·95	26·84	29·00	26·06	27·34	25·42	27·60
45	23·06	26·33	23·27	25·34	22·76	24·06	22·06	24·05
50	19·73	22·48	19·82	21·61	19·54	20·75	18·82	20·56
55	16·56	18·74	16·58	17·92	16·45	17·43	15·74	17·23
60	13·72	15·22	13·60	14·51	13·53	14·34	12·88	14·10
65	11·00	11·93	10·97	11·41	10·82	11·51	10·31	11·26
70	8·61	9·19	8·64	8·64	8·45	9·02	8·04	8·77
75	6·63	7·05	6·51	6·47	6·49	6·93	6·10	6·68
80	5·11	5·28	5·00	5·04	4·93	5·26	4·52	5·00
85	3·93	3·94	3·44	3·72	3·73	3·98	3·29	3·71
90	2·91	2·90	2·54	2·64	2·84	3·01	2·37	2·75
95	1·94	2·06	..	..	2·17	2·29	1·72	2·05
100	·50	·83	..	..	1·68	1·76	1·24	1·54

It will be seen that, with both male and female expectations of life, the Western Australian experience conforms very closely to that of New South Wales; the male expectation of the latter, and the female expectation of the former, being slightly in excess throughout the greater portion of the tables, the greatest divergence occurring at the age 0 in the male tables, where a difference of 1·75 exists.

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The expectations of life given by the two Australian tables are for most ages higher than the corresponding values in the two English tables, the difference being most marked amongst females, and at the younger ages in males.

A better idea of the incidence of mortality according to the several tables will, perhaps, be obtained by a comparison of the probabilities of living a year, as given by each table. Such a comparison is furnished in the annexed table, which gives for quinquennial ages the probabilities of surviving one year:—

Age.	Probability of surviving one year—(p_x).							
	Western Australian Life Table, 1901.		New South Wales Life Table, 1891.		English Life Table, No. 3, 1838–54.		English Life Table, No. 5, 1881–90.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
0	·8527	·8794	·8723	·8888	·8364	·8653	·8390	·8689
5	·9967	·9971	·9941	·9949	·9864	·9867	·9917	·9921
10	·9981	·9984	·9982	·9989	·9944	·9941	·9981	·9983
15	·9975	·9971	·9972	·9977	·9948	·9945	·9971	·9971
20	·9942	·9948	·9955	·9963	·9917	·9914	·9952	·9951
25	·9920	·9940	·9943	·9949	·9908	·9904	·9936	·9938
30	·9925	·9930	·9930	·9937	·9899	·9894	·9917	·9921
35	·9910	·9924	·9916	·9917	·9887	·9884	·9898	·9908
40	·9894	·9905	·9897	·9905	·9870	·9872	·9874	·9895
45	·9856	·9908	·9866	·9897	·9846	·9857	·9844	·9877
50	·9823	·9897	·9838	·9883	·9812	·9838	·9802	·9844
55	·9754	·9842	·9758	·9834	·9755	·9790	·9740	·9791
60	·9669	·9799	·9687	·9755	·9675	·9711	·9641	·9710
65	·9561	·9660	·9512	·9625	·9541	·9589	·9494	·9580
70	·9334	·9423	·9378	·9427	·9327	·9394	·9280	·9378
75	·9043	·9138	·9015	·8985	·9012	·9103	·8954	·9072
80	·8596	·8727	·8690	·8601	·8582	·8698	·8470	·8634
85	·8145	·8165	·7995	·8118	·8029	·8169	·7785	·8040
90	·7482	·7443	·6843	·6650	·7358	·7517	·6877	·7278
95	·6400	·6410	..	..	·6586	·6676	·5767	·6358
100	·0000	·3333	..	..	·5741	·5913	·4523	·5318

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PART V.—PRINCIPAL TOWNS, ETC.

[These short descriptions of the principal towns and other centres of population in Western Australia are, as a rule, supplied by the Mayors of Municipalities, or the Stipendiary Magistrates within whose Districts the towns are situated, these officials being, presumably, the most fitting persons to furnish authentic information.]

CAPITAL.—PERTH, the capital of the State (latitude 31° 57′ South and longitude 115° 50′ East), is pleasantly and picturesquely situated on the banks of the Swan River, about 9½ miles in a North-Easterly direction from the Port of Fremantle, which is in latitude 32° 3′ and longitude 115° 45′. The first stone of the city was publicly laid on the 12th August, 1829, the anniversary of the birth of the then reigning monarch, King George the Fourth.

According to the census taken in March, 1901, there were within the municipal boundaries 5,004 occupied and 104 unoccupied habitations, whilst 18 were in course of erection.

The Swan River Mechanics' Institute possesses a fine building on Hay Street, containing reading-rooms, library, lodge-room, and billiard-rooms. Among other buildings more or less recently erected, Parliament House, the Supreme Court, the Wesley Block on William Street, including the Queen's Hall, one of the largest halls in the city, the Convent and School at Highgate Hill, the Baptist Church, the Fire Brigade Station, and the Victoria Library and Western Australian Museum, add to the general appearance of the metropolis. A second theatre is in course of erection.

The population of Perth Municipality, as disclosed by the 1901 census, was 27,553, consisting of 14,591 males and 12,962 females. The population of Perth city and suburbs was found to be as follows:—

	Males.	Females.	Total.
Perth Municipality	14,591	12,962	27,553
Leederville	1,331	1,215	2,546
Subiaco	1,514	1,490	3,004
Victoria Park	674	593	1,267
South Perth	398	398	796
North Perth, etc.	603	505	1,108
Total	19,111	17,163	36,274

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A rough census of the population was taken in March and April, 1903, giving the following results:—

	Males.	Females.	Total.
Perth Municipality	16,823 ...	14,848 ...	31,671
Subiaco Municipality	2,368 ...	2,334 ...	4,702
Leederville Municipality	1,872 ...	1,837 ...	3,709
Victoria Park Municipality ...	723 ...	677 ...	1,400
South Perth Municipality ...	479 ...	468 ...	947
North Perth Municipality ...	797 ...	737 ...	1,534
Locality East of North Perth, including Maylands and Peninsula	233 ...	177 ...	410
Total, Perth and Suburbs...	23,295 ...	21,078 ...	44,373

The following vital statistics concerning the city and suburbs of Perth during 1902 and 1903 are of interest:—

	1902.			1903.		
	Males.	Females.	Total.	Males.	Females.	Total.
Births ...	774 ...	675 ...	1,449 ...	850 ...	817 ...	1,667
Deaths ...	482 ...	271 ...	753 ...	493 ...	312 ...	805
Marriages	...	...	320	...	...	677

The area of Perth city and suburbs is shown in the following return:—

	Acres.	Square Miles.
Perth Municipality *	2,545 ...	3·98
King's Park †	1,030 ...	1·61
Subiaco Municipality	1,444 ...	2·25
Leederville Municipality	875 ...	1·37
Victoria Park Municipality *	3,356 ...	5·24
Park Lands	586 ...	0·92
South Perth Municipality	2,501 ...	3·91
Park Lands	536 ...	0·84
North Perth Municipality	1,296 ...	2·02
Locality East of North Perth, including Maylands and Peninsula	2,264 ...	3·54
Total	16,433 ...	25·68

The city is now traversed in several directions by lines of electric tramway, extending through Leederville and Subiaco.

The rapidly growing municipality of *Leederville* borders on the North-Western extremity of the city, and farther to the West lies the equally thriving municipality of *Subiaco*.

Connected with the city of Perth by the Causeway Bridge, and more immediately by a steam ferry service, is the municipality of *South Perth*, situated on the left bank of the river. Higher up on the same side lie the municipality of *Victoria Park* and the hamlets *Burswood* and *Belmont*.

About six miles from Perth, prettily situated on the North bank of the Swan, is the municipality of *Claremont*, with *Cottesloe* and *Peppermint Grove* in close proximity.

* Exclusive of undermentioned Parks.
† For particulars of "King's Park," *see* "Public Works and Institutions."

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About half-way between Perth and Guildford is the growing hamlet of *Bayswater*, the centre of a large area of excellent gardening land. Nearer to the city is the suburban district of *Maylands*, with the *Peninsula*. In the neighbourhood of the latter, but on the opposite side of the Swan River, is the picturesquely situated racecourse of the Western Australian Turf Club—the leading racing club in the State. This course is one of the best appointed in the Commonwealth.

To the North of the city are found the suburban districts of *Highgate Hill* and *Mount Lawley*, and the municipality of *North Perth*.

Places of Public Interest.

Libraries and Museums.

Public Library, corner of James and Beaufort Streets, open on week days between 10 a.m. and 10 p.m., and on Sundays between 2 p.m. and 5 p.m.

Museum and Art Gallery, Beaufort Street, open on week days between 10 a.m. and 5 p.m. (Fridays excepted), and on Sundays between 2·30 p.m. and 5 p.m.

Museum, Department of Agriculture, third floor, West Australian Chambers. Open daily.

Swan River Mechanics' Institute, corner of Hay and Pier Streets, open to subscribers as follows:—Reading Room: Week days, 9 a.m. to 10 p.m.; Sundays, 2 p.m. to 10 p.m. Lending Library: Monday to Friday, 11 a.m. to 9 p.m.; Saturday, 11 a.m. to 9·30 p.m. Visitors are admitted to the reading room on payment of 6d. per week.

Parks, Reserves, etc.

King's Park, open from sunrise to 10 p.m.

The Terraces, King's Park, Mount's Bay Road.

Perth Public Gardens, opposite General Post Office, open on week days from 9 a.m. to sunset, and on Sundays from 2 p.m. to 6 p.m.

W.A. Cricket Association Ground, East Perth, open to the public except when games or sports are in progress.

Hyde Park, North Perth.

East Perth Park or Queen's Gardens, open from 9 a.m. to 6 p.m.

Esplanade Recreation Reserve, open at all times (includes Bowling Green and Tennis Court).

Wellington Reserve, Wellington Street, between Wellington and Wittenoom Streets.

Delhi Square, West Perth, facing Havelock Street.

Russell Square, West Perth, between James and Aberdeen Streets.

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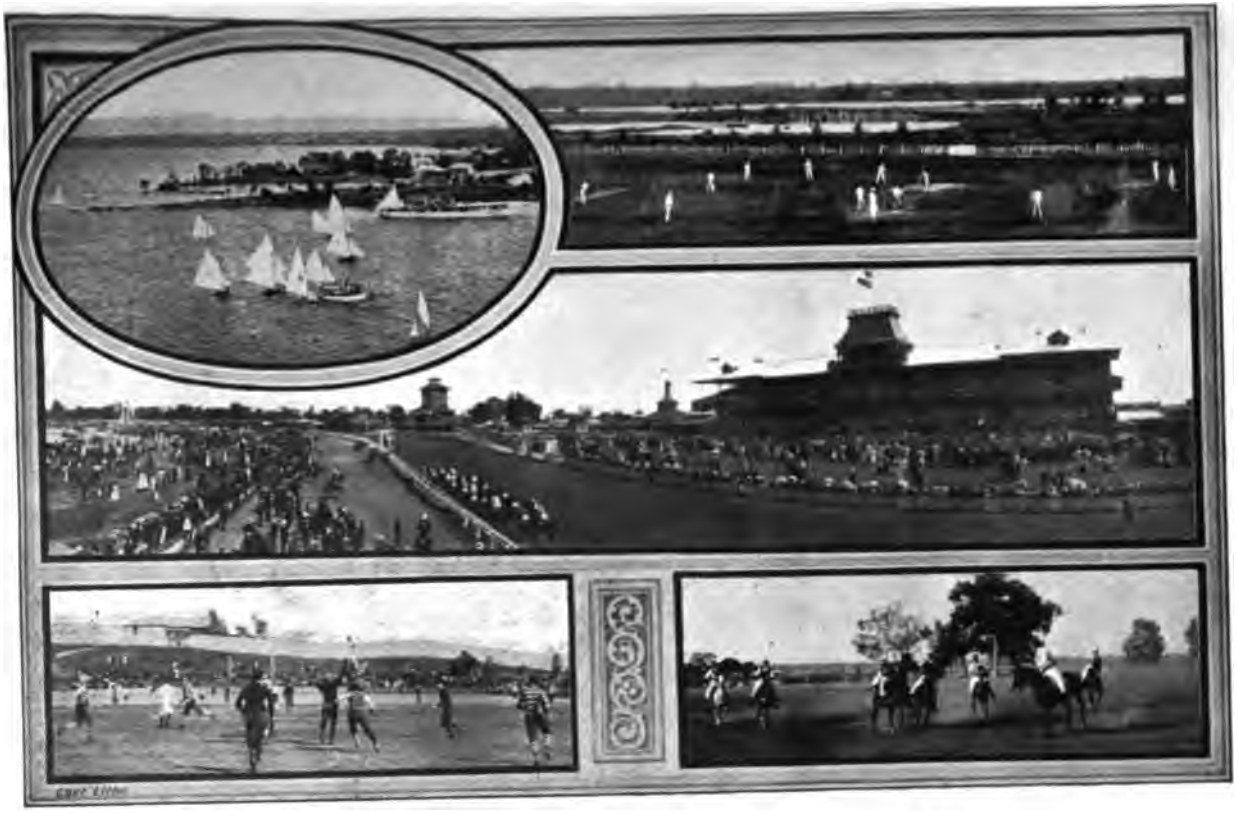

Recreation in Western Australia.

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Weld Square, East Perth, between Beaufort and Stirling Streets.

Zoological Gardens, South Perth, open week days, 10 a.m. to 6 p.m.; Sundays, 2 p.m. to 6 p.m.; available by road (*via* Causeway), or by ferry.

East Perth Cemetery.

Karrakatta Cemetery, available by Subiaco-Claremont Road, or by train.

Subiaco Municipal Gardens, Rokeby Road, available by tram and road.

Leederville Park, available by tram and road.

Point Walter Picnic Reserve, on the Swan River.

Karrakatta Rifle Range, available by train from Perth.

South Perth Rifle Range.

The Golf Links, Burswood.

Mill Point Reserve, South Perth, always open.

Racecourses.

W.A.T.C. Racecourse, off Guildford Road, about four miles from the city, available by rail, road, and river.

Canning Park Course, Cannington, available by train and road.

Helena Vale Course, Midland Junction, available by train and road.

Belmont Park Course, available by rail, road, and river.

Kensington Course (Unregistered), South Perth, available by ferry and road.

Public Institutions.

Legislative Assembly Chamber, Harvest Terrace. Open to inspection by permission.

Legislative Council Chamber, Harvest Terrace. Open to inspection by permission.

Perth Mint, Hay Street.

Perth Observatory, Hay Street West. Tuesday afternoons, 2·30 p.m. to 3·30 p.m.; Friday nights, 8 p.m. Permission must be obtained previously in writing from the Government Astronomer. Applicants are requested to state the number of their party, and the next available Friday evening will be appointed for the visit.

Public Offices, St. George's Terrace, Barrack Street, and Cathedral Avenue.

General Post Office, St. George's Terrace, main hall open from 7 a.m. to 10 p.m.

Town Hall, Hay Street.

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Government House and Grounds. Permission from His Excellency the Governor must be obtained to inspect.

Museum, Geological Survey Department, corner of Beaufort Street and Francis Street, open daily from 9 a.m. to 4 p.m., and on Saturdays from 9 a.m to 1 p.m.

Town Hall, North Perth.

Town Hall, Victoria Park.

Municipal Chambers, Leederville.

Municipal Chambers, Subiaco.

Municipal Chambers, Claremont.

Perth Artillery and Infantry Drill Halls, Francis Street.

Claremont Training College.

The State School, James Street.

Perth Hospital, Murray Street, open to visitors to patients on Wednesdays and Sundays, between 2 p.m. and 4 p.m.

ABBOTTS is a town about 50 miles North of Nannine. All business is at present almost at a standstill, owing to the closing down of the mines by exemption. The population is about 40.

ALBANY (King George Sound), one of the principal seaport towns of the State, is situated on Princess Royal Harbour. Population, 3,118. Albany is the port of call for H.M. ships when first joining the Australian Naval Station, as it is a coaling port, about 6,000 tons of coal being afloat in hulks. The channel between the Sound and Princess Royal Harbour is 650 feet wide and 30 feet deep at dead low water, as is the anchorage of about 364 acres, with excellent holding ground in the shape of a hole for receiving anchors, 300 feet by 600 feet, 34 feet deep, and lying about 680 feet off the Deep Water jetty.

King George Sound, the outer harbour, also has excellent holding ground for an unlimited number of ships, with perfect shelter from North-West and South-West, the stormy quarter. Albany is the terminus of the Great Southern Railway, connecting it with the Eastern system at Beverley, distant 240 miles. The railway jetty extends into the harbour, with 30 feet of water at low tide. The town jetty also berths steamers, with a depth at low water of 21 feet. Since 1892 Albany has been a fortified station for Australian defence, the expenditure being defrayed by the Commonwealth. The forts are garrisoned by a company of Royal Australian Artillery and a company of militia artillery. A steamer subsidised by Government runs weekly between Albany and South Coast townships, including Esperance and Mary Ann Harbour, the port of the Phillips River goldfield. The climate is beautifully cool, with an excellent rainfall. Near Albany there are several picturesque places of interest, such as Middleton Beach, Oyster Harbour, and the King and Kalgan Rivers. Beautiful views of the outer and inner harbours are obtainable from the Marine Drive, one

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King George Sound. **Albany.** Princess Royal Harbour

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of the most picturesque drives in the States. These attractions, combined with its lovely climate, make the town a favourite resort for visitors during the heat of the summer months.

AUSTIN is an island surrounded by Lake Austin, situated about 15 miles South of Cue. Mining is now at a low ebb, although large quantities of reef and alluvial gold were obtained there formerly. The alluvial was obtained from the surface to a depth of about 20 feet, and reef gold has been got to a depth of 250 feet. The railway passes through. There is a post office, one hotel, and one store. A plentiful supply of very salt water is obtainable at shallow depths, but no fresh water is available within four or five miles from the town. Population 89, being 55 men, 17 women, and 17 children. Four miles North-East of Austin is a township called *The Mainland*. This place is almost deserted at present.

BALINGUP is a townsite 17 miles from Bridgetown, on the Balingup Brook, an affluent of the Blackwood River. The land in the vicinity is good. There is a station on the Bunbury-Bridgetown railway in the townsite. Population, 254. The place has one hotel, an agricultural hall, and a post and telegraph office.

BAMBOO CREEK, formerly one of the principal reefing centres of the Pilbara goldfield, is about 100 miles from Condon, and 40 miles East of Marble Bar; it is connected with the latter place by telephone, and has a monthly mail service. There is one stamp battery, of 10-head, in operation. The townsite has been surveyed, but the township is at present practically deserted.

BARDOC.—This township is nine miles North of Broad Arrow, and within the Goldfield of that name. It contains a post office, police station, and three hotels. Population, 276. The water supply is obtained from the Government dam, about one and a-half miles South of the town. Bardoc has a railway station on the Kalgoorlie-Menzies railway line. In this centre is Vettersburg, situated about 5½ miles North-West on the railway line; Scotia Siding, about 12 miles North; also the Wycheproof belt of leases, about two miles North.

BAYSWATER, *see* Perth.

BEAGLE BAY, *see* Broome.

BEJOORDING is a small township, situate about 18 miles North of Newcastle. Almost all the town lots have been bought up by farmers, and devoted to the raising of cereals and the breeding of pigs and other stock. The soil is very productive, and the rainfall ample. There are no public buildings in the township, excepting a small school. It is intended to build a line of railway to the townsite from Newcastle.

BELMONT, *see* Perth.

BEVERLEY is a rising agricultural town on the banks of the River Avon, 100 miles from Perth, on the main line between Perth and Albany. The population is 328, viz., males, 180; females, 148. The Government has erected a fine court-house and hospital.

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Various other buildings have been recently built, amongst which are a new hotel, bank premises for the West Australian Bank, a coffee palace, several new shops, and numerous private houses. There are also two other hotels, a large and commodious Mechanics' Institute, and, further, a flour mill with modern appliances. Beverley possesses three churches, viz., Anglican, Roman Catholic, and Wesleyan. The surrounding country is for the most part rich chocolate and red soil, noted for its great wheat-producing capacity. All this country, for a radius of 15 miles, is settled, and is being improved at a rapid rate. The River Avon runs through the district, but in summer is broken into large permanent pools or reaches, the land in the neighbourhood of which is particularly suitable for the production of fruit and irrigation crops. The roads, the care of which devolves upon the Municipal Council and the Beverley Roads Board, notwithstanding the amount of heavy traffic on them, are in an efficient condition. The same may be said about the bridges and culverts. Owing to the rapid rise of the district, continual additions have to be made to the railway yards, and the town always presents a busy aspect. The average rainfall is about 15 inches, and the variations of the temperature are not so great as in many places at the same distance from the coast. It is extremely rare for it to be so hot or so cold as to be unpleasant.

Black Flag.—This township is in the Broad Arrow goldfield, 10 miles South-West of Broad Arrow. Population, 60. There are a post office and two hotels. The water supply is obtained from the Government dam, about one mile North of the town. In the centre is the Lady Bountiful belt of leases.

Bonnievale.—This township lies about seven miles North-East of Coolgardie, and has about 540 inhabitants, mostly mining men. There are three large mines in active operation, and several smaller claims are being successfully worked. Bonnievale possesses three hotels, a public school, telegraph station, and post office. A coach runs twice daily between it and Coolgardie.

Boogardie is a mining township, situated about four miles West of Mount Magnet. Some mining work is being done in the neighbourhood, and a public battery has been erected. There are a couple of hotels, and also a couple of stores. The population is about 54 males and 26 females; total, 80.

Boorabbin is a refreshment station, situated on the Perth-Coolgardie railway line. There is one hotel.

Boranup is a timber station in the vicinity of Karridale. Population, about 130.

Boulder is an important mining and business centre in the East Coolgardie Goldfield. It is a municipality under the control of a mayor and twelve councillors, and is situated about four miles from Kalgoorlie, with which it is connected by rail, tram, and road. The population of the municipality in April, 1903, was 5,658, viz., 3,090 males and 2,568 females. There are excellent hotels, stores, etc., in the town, and also a court-house, which is visited by the

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resident magistrate from Kalgoorlie when his services are required. Branches of the Post Office Savings Bank, the Western Australian Bank, the Bank of New South Wales, and the Commercial Bank have been established, and an evening newspaper is published daily. Some of the richest gold mines of the State are in the immediate vicinity of Boulder. The municipality is lighted with electric light supplied by its own plant, the value of which, on 31st October, 1903, was estimated at £10,271. Municipal debentures to the amount of £5,900 were outstanding on 31st October, 1903, while the sinking fund for their ultimate redemption amounted at that date to £600.

BOYADINE is an old agricultural settlement in the Beverley District, 115 miles East from Perth, and 15 miles by coach from Beverley. It has a post office and an agricultural hall. Population, 133.

BRIDGETOWN is a township on the Blackwood River, 61 miles by road from Bunbury. Until the discovery of tin at *Greenbushes*, about 10 miles distant, in the year 1888, it was purely an agricultural and pastoral centre. The climate is mild, with a regular rainfall, averaging over 34 inches per annum, and the soil is unsurpassed for all farm and garden produce. English fruits especially flourish throughout the district. The land in the vicinity is hilly, and timbered principally with red gum and jarrah. Surface water is abundant. There is a railway from Bunbury to Bridgetown, 69 miles in length. Population, 520. There are four hotels, a branch of the W.A. Bank, a post and telegraph office, and other public buildings.

BROAD ARROW lies about 24 miles North-East of Kalgoorlie. As the official centre of the Broad Arrow goldfield, it is visited monthly by the warden from Menzies. Together with Paddington, it forms a municipality consisting of two wards. The council consists of a mayor, and three councillors for each ward. Population: Broad Arrow Ward—606 males, 401 females, total, 1,007; Paddington Ward—406 males, 206 females, total, 612. In Broad Arrow there are warden's, local, and police courts, post, telegraph, and savings bank offices, police station, State school, seven hotels, two breweries, and branches of the Western Australian Bank and Bank of Australasia. The water supply is obtained from the Government dam—capacity, 10,000,000 gallons—and from various other sources. Both wards are situated on the Kalgoorlie-Menzies railway line, about two and a-half miles from each other, Paddington being the most southerly. In the district are situated *Windanya* (late *Australasia*), a mining centre about eight miles to the North-North-West, with one hotel; the *Dixie* and *Gladiator* groups, about nine miles North-West; *Liberty* (or *Broad Arrow Consols*), about eight miles West, with a population of about 75; the *Credo*, about four miles West, at which water fit for domestic purposes is found at a depth of 80 feet, and which has one hotel. In the Paddington ward there are post, telegraph, and savings bank offices, police station, six hotels, and a State school. The water supply is obtained from Broad Arrow.

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BROOME, the principal cargo port on the North-West coast, is situated in Roebuck Bay. The alternative cable of the Eastern Extension Australasian and China Telegraph Cable Company from Banjoewangie is landed here, and the company has good buildings for its staff. This town is also the principal rendezvous of the vessels engaged in the pearling industry, being centrally situated and possessing an excellent harbour, where the boats lie safely during the hurricane season. Population, nearly 3,000, including the men of the pearling fleet. Amongst the public buildings are a Government residency, post and telegraph office, hospital, court-house, custom-house, bonds, police quarters, and gaol. Water is laid on to the town and jetty from a 25,000 and a 15,000 gallon tank, filled by oil engine pumps. There is a fortnightly service of steamers to Fremantle and Singapore. A tidal jetty for steamers, with cattle yards and a tramway, has been constructed, and further shipping facilities are provided. Owing to the great rise and fall of the tide (28 feet), steamers and other vessels beach and clean here. The climate, though tropical, is good, the heat in summer being tempered by strong sea-breezes blowing night and day. There are two trading-lights, and a light-house is being erected on Gantheaume Point. The town is provided with two churches (one Anglican, one Roman Catholic). There are three hotels, and the town also supports a branch of the Union Bank. At *Beagle Bay*, about 70 miles to the Northward, is situated a Roman Catholic Mission Station, founded in 1890 for the benefit of the aborigines.

BROOKTON, a small town, has recently sprung up on the Great Southern Railway, between Beverley and Pingelly. Building operations have been very much in evidence here, a hotel, store, and several private houses having been erected, a post office established, and several other improvements effected, whilst a State school has also been opened.

BROOME HILL townsite is situated by rail 103 miles from Albany and 237 miles from Perth, and is surrounded by some of the finest wheat-growing areas along the Great Southern railway line. Lord Brassey's estate is only five miles distant from the town. The progress of this district might possibly have been more rapid had not in the past immense areas of rich land been sold without compulsory improvement conditions. Population of Broome Hill and surrounding district, 800.

BRUNSWICK is situated on the South-Western Railway, 16 miles from Bunbury. It is a fairly important place, being the junction with the Collie coalfields. The principal buildings consist of a railway station, agricultural hall, post and telegraph office, Government school, and an hotel. Population, about 270.

BULDANIA, *see* Norseman.

BULLABULLING is a small town on the Perth railway line, about 18 miles from Coolgardie, and inhabited chiefly by wood-cutters, who supply Coolgardie and the various mines with wood. A large reservoir has been erected here in connection with the Cool-

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gardie Water Scheme. The place has one hotel, and is the centre of a promising mining district. Population, 50.

BULONG is a rather pretty little town on the North-East Coolgardie goldfield. The streets and footways are well made and kept, and ornamental trees are planted on both sides of the streets. The natural timber and bush surrounding the town have been well preserved, giving the place a rural rather than a mining appearance. There is a large miners' institute, attached to which is a reading room. This institute has an excellent stage. The town is governed by a mayor and councillors. There is a good hospital. The water supply is obtained from the Government reservoir and house-tanks. A group of gold-mining leases, situated about one mile West from the town, are being worked. There is a State school, also Roman Catholic, Anglican, and Wesleyan churches. The population of the municipality is 300, viz., 170 males and 130 females. Just recently two prospectors, named Fogg and McLear, have discovered what appears to be a rich lode two miles North of the town.

BUNBURY, a seaport on the Western coast, about 116 miles South of Perth, is prettily situated on a peninsula, bounded on the North and West by the Indian Ocean, and on the East by the Leschenault estuary. It has railway communication with Perth and Donnybrook; also with Busselton, distant about 30 miles South. The climate is almost perfect, the rainfall during the winter months being abundant, while the summer heat is tempered by daily sea breezes. There is excellent pastoral and agricultural land in the district, and fruit of all kinds grows luxuriantly in the vicinity of the town. The harbour facilities, lately completed, consist of a jetty 1,147 feet long, protected by a breakwater 3,200 feet in length. The jetty gives accommodation for eight vessels; the depth of water at the outer end being 21 feet, and at the inner end 15 feet; any steamer 300 feet long or under can load down to 19 feet. Bunbury is a favourite resort for visitors during the summer months. Its temperate climate, commodious sea baths, and the opportunities afforded for boating and fishing add to the attractions of those seeking a change and pleasant holiday. There are several good hotels and boarding-houses in the town. There was a marked increase in the export of timber during 1903, the total quantity exported being 110,159 loads, valued at £440,638. The wool exported amounted to 153,045lbs., value £5,136. The number of ships that entered the port was 276, of a nett tonnage of 51,652. The increase of trade has tended to a rapid improvement of the town, and the building trade has progressed proportionately. Electric light has been installed; there is also a telephone service, and a water supply scheme has been initiated and is progressing towards completion. Bunbury is undoubtedly one of the most progressive and prosperous towns in the South-Western portion of the State. Population—males, 1,572; females, 1,335; total, 2,907.

BURBANKS is due South of Coolgardie, about six miles. The Burbanks Birthday Gift Gold Mines are situated here. Besides the men employed on these mines, a large number are working

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successfully at smaller claims around the township. There are a number of large buildings at Burbanks, amongst which may be mentioned a miners' institute, three fairly large hotels, a post and telegraph station, a police station, and a Government school. The township is in coach communication with Coolgardie, from whence the telephone system also extends. The mines here are illuminated by electric light. The footpaths of the main street are neatly kerbed, and the sanitary arrangements of the township are excellent. Population, 500.

BURNACOORA is a mining camp, situated about 20 miles South-East of Nannine. Reef gold is found here, and some alluvial is also obtained. The water supply is at present good and sufficient. There is one hotel, and the population consists of about 38 men and 12 women.

BURSWOOD, *see* Perth.

BURTVILLE, situated 18 miles E.S.E. from Laverton, is the centre of a great number of small but rich shows, which are all still in the hands of prospectors. Some extremely rich crushings have been obtained. A Government battery was erected during 1903, and has been kept fully employed. Branches of the Union and W.A. banks have been opened. There are two hotels. Police station and lockup have been erected. Population—males, 250; females, 40; total, 290. Coaches run out here from Laverton with mails on Mondays, Wednesdays, and Fridays.

BUSSELTON, frequently called "the Vasse," is a small and picturesque seaport town situated at the head of Geographe Bay. Cape Naturaliste shows in bold relief away in the distance to the left, and upon it a lighthouse of the first class has just been completed, on its most prominent eminence, 400 feet above sea level. The light at Cape Naturaliste is a flashlight, visible at a distance of 29 miles. At Busselton excellent fishing can be had, and the lovely caves along the coast are well worth visiting. The bay itself, being nearly always calm, is a fit place for both small and large vessels to weather a gale. The jetty, one mile in length, having 18 feet of water at its head, is suitable for vessels up to 1,000 tons burden to load at, and might well be made use of to far greater extent than it is at present in shipping timber and relieving the frequently congested shipping at the adjoining port of Bunbury, 30 miles distant. Busselton is connected with Bunbury by a railway 42 miles in length, passing, *viâ* Boyanup, through forests of jarrah and tuart. Large patches of good land only require clearing to make this district an important centre of agriculture. The town itself can be favourably compared to Bournemouth, both as regards its climate and extensive and safe sea beach, where excellent bathing can always be had. It is rapidly becoming one of the most favourite seaside resorts of the State, numbers of visitors from the goldfields being charmed with its many attractions and delightful cool sea breezes, which, from its favoured geographical position, it receives from the three cardinal points of the compass,

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whether it be from the North, West, or South. Amongst its attractions are its famous limestone caves, the Yallingup Cave being only 19 miles distant. The latter has recently been lit by electricity, and may be said to be one of the sights of the world. The Government have erected an accommodation house in its vicinity, which may be reached by coaches plying daily. Bathing and fishing are to be had a short distance from the cave in a natural basin formed by the coral rocks enclosing a space of about one and a-half acres. Further South are the Margaret Caves, which are famous for their stalactite formations, and in which the Government have constructed stairs and bridges across streams flowing through them. The population of Busselton, early in 1903, was: males, 210; females, 232; total, 442.

CAPEL is situated on the banks of the Capel River. Its distance from Bunbury is 17 miles by road and 28 miles by Government railway. It has a railway station and goods-shed, agricultural hall, Government school, and post and telegraph office, also a public house and store. The residents are but few, and the place is merely a centre for the surrounding settlers. The Government have recently purchased a large private estate in this locality, comprising 10,000 acres of land, a great deal of it being swamp ground, which is being drained and cut up into blocks for settlement. This will no doubt add to the improvement of this centre. Population, about 50, within a radius of one mile.

CARNARVON is situated at the mouth of the River Gascoyne, and is the shipping port for the wool produced in the extensive pastoral district of that name, and the starting point for the Bangemall diggings, 260 miles inland. The public buildings consist of a court-house, school-house, bonded store, residency, gaol, post office and telegraph station, church, library, and hospital. It has three hotels and three stores. The town is well supplied with water. Population—males, 200; females, 126; total, 326.

CHESTERFIELD, a mining settlement situated about 45 miles North-West from Nannine, is now almost deserted. Population, about 20.

CHIDLOW'S WELL, 28 miles from Perth, is now a centre for wood cutting and charcoal burning, with a population in the immediate vicinity of about 150 to 200. There are there a telegraph station, post office, Government school, and one wayside house.

CLACKLINE is the junction of the Newcastle-Clackline and Eastern railways. Until quite recently the place was a thriving settlement, but since the closing of its iron quarries it has dropped back. It possesses a public school, which has a good attendance, a hotel, and a few private residences. The soil and the rainfall are excellent.

CLAREMONT is situated midway between Perth and Fremantle, with Freshwater Bay, a portion of the Swan River, as its Southern boundary. The bay is a beautiful sheet of water. The Perth-Fremantle road runs through the town; nearly all the streets have

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been cleared, and about ten miles have been metalled. The growth of Claremont has been very rapid; the buildings and improvements generally being of a substantial nature. One of the features of the town is, that while handsome well-built houses abound, the native *flora* still exists in profusion, and adds greatly to its beauty. Public institutions are represented by the Training College for Teachers, Practising School, and Post and Telegraph Office, and the religious denominations by Anglican, Congregational, Wesleyan, and Presbyterian Churches. A plentiful water supply is afforded by the Government bore, from which almost all the streets of the town are reticulated, whilst electric light for public and private use is now in course of installation by the council. A fine jetty in Freshwater Bay, together with the adjacent public baths, are also under the control of the council. Population, about 2,500.

COLLIE is a municipality, and the centre of the Collie Coalfield, the most important mine at present, that of the Collie Proprietary Company, being within the townsite boundaries. The town has a bank (Commercial Bank of Australia), a post and telegraph office, a State school, and a Government hospital. There is also a mechanics' institute, where the municipal council meets, a police station, and a court house, where a Local Court is held on the third Wednesday of each month. Services are held by five denominations—the Anglican, Roman Catholic, Methodist, Congregational, and Salvation Army. The town is lighted by electricity, which is also largely made use of by private consumers. The population of the district is about 1,500. The yearly output of coal may be estimated at 140,000 tons.

CONDON, formerly known as SHELLBOROUGH, is named from the creek on which it is situated, and lies on the sea coast, 100 miles from Marble Bar. Stores are landed from small coasting vessels and lighters. The place has a telegraph station, and a fortnightly mail service. There are here two hotels and one store. Population, about 50.

COOGEE.—This is an agricultural settlement, situated about seven miles from Fremantle. It contains a large lake of fresh water, and a great quantity of vegetables and fruit are grown in the district.

COOGLEGONG TINFIELD is situated 45 miles South-West of Marble Bar, and nine miles North-West of the old Shaw Tinfields. This field has produced a large quantity of stream tin. The place has one store.

COOKERNUP is a townsite on the South-Western Railway, 34 miles from Bunbury. It has a railway station, agricultural hall, Government school, and post and telegraph office. Population, about 300. There are two timber mills in this locality, which are connected with the Government railway by two wooden horse trams for the purpose of bringing in timber.

COOLGARDIE, the township from which the now famous Coolgardie Goldfields originally derived their name, is situated about

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114 miles East of Southern Cross, and is the headquarters of the warden of the Coolgardie Goldfield. It is also a municipality, represented by a mayor and nine councillors. In the municipality there are a number of imposing buildings, built of brick and stone, many of which are used as the offices of mining companies. There is also a club, and a Chamber of Mines. There are six banks in the town, fifteen large hotels, a large number of stores, some minor factories, two small theatres, a workers' hall, several churches and schools, a large Government hospital, and a mechanics' institute, with a library of 2,700 volumes. The building at one time used for the Coolgardie Exhibition, and which is substantially built of stone, is now utilised for the purpose of a School of Mines and Technical School. Coolgardie possesses a daily morning paper. An imposing block of Government buildings, in which the courts of the warden and the resident magistrate are held, stands in the centre of the principal street. The town has telegraphic communication, and is connected with Perth by a railway, which extends to Kalgoorlie, Kanowna, Menzies, Malcolm, and Leonora. There is also a telephone exchange which is connected with Kalgoorlie and Boulder. Within a few miles of the town a large number of gold mining leases are being worked, some of which possess rich reefs, and numerous batteries and other gold-mining appliances are now in active operation; a Government Public Battery is also in course of erection. Sawmills, brick and tile works, and two large breweries are established in or near the town, and good building stone is locally quarried. The town and district are reticulated in connection with the Coolgardie Water Scheme. The Coolgardie racecourse, where race meetings are held twice annually, is situated about half-a-mile East of the town; it has a fine grandstand and all the latest conveniences. The town is well laid out, the streets being all two chains wide, and the footpaths of the principal street tar-paved. It is illuminated with twenty-four 1,000 candle-power arc lights, and is planted with trees and kept in a most cleanly condition. In the park-lands, where ornamental trees, shrubs, and flowering plants are growing well, a rotunda has been erected, and comfortable seats have been placed in different positions for the use of the public. The recreation reserve is kept in splendid order, and every requisite convenience is to be found there. Careful provision has been made for an adequate supply of water in case of fire, and the Municipal Council has an efficient and well-equipped volunteer fire brigade. *Toorak* and *Montana*, suburbs lying to the North and South of the town, contain many pretty residences. The swimming baths, which are under the control of the municipal council, have proved a great boon to the residents. Coolgardie was proclaimed a municipality in November, 1894. Within the municipal boundaries the population is about 4,000.

Cossack, the port of Roebourne, is situated on the North bank of a large tidal creek, which receives the flood waters of the Harding River and tributaries. A tramway carries passengers and goods to Roebourne, about nine miles away. The anchorage is an open roadstead, and only vessels under 200 tons can come alongside the

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wharf, lightering being necessary for larger ships. The town possesses some good public buildings, including customs and police quarters, courthouse, post and telegraph offices, and Government school, all substantially built of stone. Population, about 150. A stock jetty about three-quarters of a mile long has been erected at Point Sampson, about two miles from Cossack. Already 22,000 sheep had been shipped from there in July, 1904, though the jetty had not yet then been taken over from the contractors.

COTTESLOE is one of the principal suburban districts on the Perth-Fremantle railway line. It is situated about eight miles from Perth and four miles from Fremantle, and consists of three contiguous roads board districts, namely, Cottesloe, Peppermint Grove, and Buckland Hill. It has two railway stations, Cottesloe and Cottesloe Beach. The Cottesloe Roads Board district comprises that portion of the suburb which lies on the sea-side of the Perth-Fremantle road, and includes both the original settlements of Cottesloe and Cottesloe Beach. It is one of the leading seaside resorts in Western Australia. It has a large park reserve. Peppermint Grove is a charming residential suburb of Perth, situated on the banks of the Swan River at Freshwater Bay. There is a large hall suitable for public and private entertainments, and recently a splendid site of some 10 acres has been secured for a public park, and has already become a great resort for picnickers. There are boating and bathing clubs established. Buckland Hill extends from Cottesloe Beach station to the Swan River, and adjoins the Northern boundary of the North Fremantle Municipality. Buckland Park commands most beautiful views of the river and ocean. In the centre of the district there is an excellent recreation ground. The population for the three districts is approximately 3,600.

CUDDINGWARRA is a township situated about eight miles North-West of Cue. Mining is in a low state. There are two hotels and a miners' institute with a few books in it. The population is about 40—29 males and 11 females. Fresh water is obtainable from wells distant about two miles.

CUE.—This is the principal town of the Murchison goldfield. It contains the chief Government offices, and is the headquarters of the Warden. There are post, telegraph, and money order offices, three banks, Anglican, Roman Catholic, Wesleyan, and Salvation Army churches, State and Roman Catholic schools, two newspaper printing offices, a miners' institute, A.W.A. Hall, police quarters, and numerous places licensed under the Wines, Beer, and Spirit Sale Act. The railway passes through to Nannine. The mining around this centre is in a depressed state, but good hope of its future is entertained by many of the local people. The water supply is very bad, but a scheme for bringing water a distance of 14 miles from Jack's Well is now under consideration by the Government and the municipalities of Cue and Day Dawn. Large areas of the surrounding land are occupied by pastoralists. The climate is hot during the summer months, but very pleasant during the winter season, and on the whole dry and healthy. The rainfall

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is very uncertain, and the country is subject to droughts. There is a commodious public hospital, under the management of a district medical officer. Population, about 1,200 males, and 589 females, total 1,789, within a radius of two miles.

DANDARAGAN is a rural settlement noted for its pastoral and agricultural capability, somewhat resembling Yatheroo, from which it is situate some 10 miles distant. Considerable attention is here devoted to the growth of cereals, and also to the manufacture of butter. Moora, situate some 20 miles West, is the railway township through which the greater part of the Dandaragan business is transacted. The rainfall is good, and the roads are excellent. Dandaragan possesses a post office and public school. Population, about 150.

DAVYHURST, a flourishing mining centre, is situated about 35 miles South-West of Menzies, and is served by a tri-weekly passenger coach. It has telegraphic communication with Coolgardie. There are two hotels. The Bank of Australasia has a branch here. Some very promising mines are in the vicinity. The great drawback to the mining industry in this district has been the scarcity of water. Recent extensive boring operations by the Government have resulted in the discovery of a good supply, and increased prosperity should result. There are 15 head of stamps in the locality, and the State battery at Mulwarrie is also used by prospectors. Population, 138.

DAY DAWN is situated about three miles South-West of Cue. The Perth-Nannine railway passes through. Day Dawn is the principal mining centre of the Murchison Goldfield. The Great Fingall Mine is here; its gold production for the year 1903 amounted to 157,272oz. This mine alone gives employment to more than 400 men. There are several other promising mines in the locality, but owing to want of working capital they are not flourishing just now. Postal, telegraph, and money order offices are provided, also police barracks. The principal denominations have places of worship. Two banks, two schools (State and Roman Catholic), one newspaper printing office, and other institutions exist. The Government of the town is vested in a Municipality. The water supply is from wells, and, although inadequate, is much better than at Cue. Altogether Day Dawn (thanks to the Great Fingall Mine) may be classed as a prosperous place. Population, 1,204 males, and 492 females, total 1,696, within a radius of three miles on all sides, except in the direction of Cue.

DENMARK.—This settlement is prettily situated on the Denmark River, at a distance of 38 miles from Albany, and there is a service of trains to the latter place. It is the property of Millar's Karri and Jarrah Forests Company, Limited, and consists for the most part of the houses of their chief employees, stores, workmen's residences, etc. There are also a Government school, post and telegraph office, public hall, and other buildings. As the

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karri forest is cleared, no doubt most valuable land for agricultural and fruit-growing purposes will be opened up. Population, about 700.

DERBY, the chief town of the West Kimberley District, is situated on King Sound, not far from the mouth of the Fitzroy River. It has a fine natural harbour, with which it is connected by two and a-half miles of tramway. The chief products of the district are wool and live stock, the number of the latter shipped from the port having largely increased during recent years. Large numbers of cattle and sheep are annually sent away, chiefly to Fremantle, a small number occasionally going to Singapore, which offers a good market within easy reach. The facilities for shipping cattle have been greatly increased by the erection of cattle yards and races. The township has an excellent water supply. There are in Derby two hotels, and the Government buildings in use by the various departments include a post and telegraph station and savings bank. At the Fitzroy Crossing, on the road to Hall's Creek, there is a telegraph station communicating with Wyndham and with the other telegraph services of Australia. There are good roads up the Lennard and Fitzroy Rivers, passing through various sheep and cattle stations. The district contains some of the finest pastoral country in Western Australia, well watered, and abounding in game. Population, about 100. In addition, some 150 people are engaged in pastoral pursuits in the outlying parts of the district. A townsite is now established at Fitzroy Crossing, named "Wallaberi," and blocks are selling.

DONGARA.—The townsite is situated about 46 miles from Geraldton, on the bank of the Irwin River. It is an agricultural centre, and the settlers generally are in a prosperous condition. The soil is rich, producing large wheat yields, and splendid pasturage. Modern methods of farming are followed, and some superior stock is raised in the district. Fruit-growing has been successfully carried on, though it has not been attempted on a large scale. A roller flour mill has been in active operation for many years. The town has a bank, a mechanics' institute, a farmers' club, three churches, and one hotel. It is in telegraphic touch with the rest of the State, and enjoys railway communication with the metropolis, while occasionally the port, which is about one and a-half miles from the town (and which is not considered safe in rough weather), is visited by a coaster. Fairly large quantities of wool are annually exported. Local Government is administered by a Road Board.

DONNYBROOK is a small town situated about 25 miles South of Bunbury. It is on the Bunbury-Bridgetown railway, and has a railway station, agricultural hall, Government school, police station, post and telegraph office, three hotels, and stores. It is the key to the Upper Preston River country, which has a fair amount of land under cultivation, and where it is anticipated a timber company is likely to start operations in the near future. Population, about 400

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DRAKESBROOK is 18 miles by road and rail South of Pinjarra. A post office and agricultural hall have been built, and several saw mills started in the ranges, which at this point allow of easy approach to settlements in them. There is good land in the neighbourhood, which is being rapidly taken up. Religious services are held by the Anglican Church and other denominations. Efforts are being made to build a church. The nursery gardens laid out in the neighbourhood by the Government, which are in a flourishing condition, are a source of attraction to many. Population, about 100.

DUNDAS townsite, situated 15 miles South of Norseman, on the Esperance road, was the centre of the early mining operations on the Norseman field, and is now receiving renewed attention at the hands of prospectors. The township has postal communication.

EAST BEVERLEY is situated about 13 miles from Beverley, and is an agricultural settlement. It has a State school and an agricultural hall, and is under the care of a roads board. Population, about 300. The land in the surrounding district is being rapidly improved.

EAST FREMANTLE—including the districts of Plympton, Richmond, Brighton, Richmond Hill, and Windsor—was proclaimed a municipality in 1897. The town has a population of about 3,200. It is rapidly increasing in size and importance, its salubrious situation, and the fact of its overlooking the Swan River and the ocean, making it a favourite residential area for the business men of Fremantle; many fine residences are situated within its limits; and the improved and unimproved property was estimated for the financial year 1903-4 to represent an annual value of £26,997. There are three churches (Wesleyan, Presbyterian, and Anglican), several hotels, stores, shops, two breweries, etc., in the town. In the suburban districts above named are several fine orchards and vineyards. The public buildings include a large town hall and a public library and institute. Municipal baths have been constructed in the Swan River.

ESPERANCE is the principal town of the Esperance district, which district extends from the Hamersley River to Eucla. It is 237 miles East from Albany by sea, 112 miles from Dundas, and 126 miles from Norseman. The town is a municipality, and has a population of about 300. There is a large and safe natural harbour, completely sheltered by numerous islands, giving it, from the town, the appearance of being landlocked. There is a weekly mail steamer from Albany, and sailing vessels call. A fast coach runs through to Coolgardie (236 miles) twice a week, the time taken being: Esperance to Norseman 34 hours, and Norseman to Coolgardie 29 hours. The Western Australian Bank has a branch here, and several of the large wholesale firms from Adelaide and Melbourne have opened business branches. There is a second township about two miles North of the Government township, laid out by the

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Esperance Bay Land Company, with a jetty giving 23 feet of water at low tide. The Government jetty is over 2,000 feet long, and has four berths. The Government buildings are: Court-house, post-office, public works offices, a large stone-built school, hospital, customs offices, and extensive goods sheds with enclosed yards, four acres in area. A splendid water supply has been laid on to the jetty for steamers.

EUCLA is a small settlement on the Eastern boundary of Western Australia, about 520 miles East of Esperance, and about an equal distance West from Adelaide. The West Australian and South Australian Governments have each a telegraph station here. The place possesses a good anchorage in the roadstead, which was surveyed in 1867 by Captain Douglas. A steamer from Esperance calls every three months, and a sailing vessel from Albany makes intermediate trips, calling *en route* at Bremer Bay, Esperance, and Israelite Bay. Population, about 60. There is a small jetty, handsome stone-built telegraph offices, and a customs office. The country around is described as good for pastoral purposes, but the want of water prevents successful operations.

EYRE'S SAND PATCH, about half-way between Israelite Bay and Eucla, is a transmitting station on the intercolonial telegraph line. The roadstead is fairly safe, except in the case of southerly winds.

FANNY'S COVE is a small settlement 40 miles West of Esperance. A schooner calls there once a month, and there is a fortnightly mail from Esperance.

FIELD'S FIND, an important mining centre on the Yalgoo goldfield, is situated about 65 miles South-South-East from Yalgoo. The principal mine is owned by the Field's Reward Gold Mines, Limited, and is equipped with a 20-head battery, also a pumping and winding plant. At present part of this plant is being renewed, and on its completion it is anticipated that the mine will again show good results. A townsite has not yet been declared, but in the vicinity of the mine there are two hotels, two stores, police station, and private residences. There is a weekly mail service from Yalgoo. Most of the adjacent country is held under pastoral leases, it being well adapted for that purpose. The white population of the police patrol district is about 130. The Warden's and local courts held at Yalgoo on the second Thursday of each month deal with the court work of the district.

FREMANTLE, the chief port of the State, is situated at the mouth of the Swan River, about 12 miles from the capital (Perth). The natural harbour is not well suited to afford shelter to vessels; but the carrying out of the great harbour works scheme, designed by the Engineer-in-Chief of the State, the late Mr. C. Y. O'Connor, C.M.G., has converted the sandy and shallow mouth of the Swan River into a safe and commodious haven. Huge breakwaters have been constructed on each side of the river's mouth for a considerable distance into the sea. The rocky bar at the entrance to the river

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has been blown up, and the shallow water within has been dredged to the necessary depth to permit of the largest mail boat entering. All the various lines of mail steamers trading to Australia now make Fremantle a port of call, and enter the harbour. Nearly a mile of deep water berthage has been provided, and the Victoria Quay, where the mail steamers are berthed, is the finest and most commodious in Australia. Several years have been occupied in carrying out this great undertaking. It is also contemplated in the near future to construct a graving dock within the river, with accommodation sufficient to permit of the largest vessel afloat being admitted. With the completion of this fine harbour on the Western seaboard of Australia it is expected that the construction of a transcontinental railway, to connect Fremantle with Adelaide, Melbourne, Sydney, and Brisbane, will be commenced. This will link Western Australia with the other States, and permit a trip to be undertaken in a few days in comparative luxury and comfort, as against the long and tedious sea trip now enforced. Fremantle would then become the Brindisi of Australia. The expansion of the town has of late been very rapid. It possesses numerous churches, chief amongst which are St. John's Anglican Church, and St. Patrick's Roman Catholic Cathedral. Each of these edifices is a fine example of Gothic design. Banks, schools, warehouses, and public buildings are well represented, and in the vicinity of the town are extensive smelting works. There are many fine buildings in course of erection, including a theatre and a trades hall. The advantages of a seaside resort are represented by a fine stretch of ocean beach, with an esplanade. The climate of Fremantle is excellent in summer, the sea breezes, which blow with almost perfect regularity, cooling the atmosphere very considerably. The population of the Fremantle municipality at the census of March, 1903, was 9,155 males, and 7,212 females; total, 16,367.

Freshwater Camp or Denham, the chief seat of the Shark Bay Pearling industry, is 80 miles South from Carnarvon, on the telegraph line. The public buildings are a police station, telegraph station, mechanics' institute, and schoolhouse. It has one hotel and several small stores. The costal steamers, which, as a rule, pass about 20 miles from the camp, and land their cargo at Dirk Hartogs Island, occasionally call in here. Sandalwood-cutting is carried on in the neighbourhood of the camp. Fresh water is obtainable on the beach. Population of the Shark Bay District, 206.

Gabanintha, a mining centre situated about 23 miles easterly from Nannine, is a promising district, several small mines being profitably worked by their owners. A mill, privately owned, crushes for the public. In addition to gold, copper ore of good quality is also found here. *Star of the East* and *Quinn's* are included in this district. There are hotels at Gabanintha, Star of the East, and Quinn's, and also stores The population of the district is about 200.

Geraldton.—Geraldton, or the Port of Champion Bay, as it was originally known, is situate 287 miles from the capital by rail,

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and 210 from Fremantle by sea. It is one of the principal ports of the State, and serves the whole of the Victoria District and Murchison Goldfields. There is good pastoral and agricultural country at its back. Its export of wool exceeds that of any other part of the State outside the North-West; and the district contributes largely towards the meat supply of the South. The agricultural industry is prosperous. Areas reserved for closer settlement have been eagerly taken up, and are being brought under intense cultivation. Last year the Government acquired, under the Lands Purchase Act, the well-known Mount Erin Estate, which has since been subdivided and thrown open. Selectors are showing much anxiety to secure blocks, the country being not only suitable for mixed farming, but admirably adapted for the production of citrous fruit. Geraldton boasts the most pretentious pile of public buildings to be seen in Western Australia outside the city, comprising Police and Supreme Courts, Customs, Treasury, Registrar's, and Land Offices. Its public hospital accommodation, provided to meet the necessities of the outlying goldfields, is said to be probably unrivalled by the capital itself. In the Municipal Chambers, in which the Mayor and the Councillors perform their duties, the town has an ornate structure, designed to form portion of a scheme, which, when completed, will give Geraldton a Town Hall with claims to high architectural rank. A free public library, established two years ago, proves a boon to visitors, and the promenade pier, with band rotunda, has few equals in Australia. There are several recreation grounds and parks, and, besides a Salvation Army Barracks, there are four Churches—Anglican, Roman Catholic, Methodist, and Presbyterian. A Chamber of Commerce and a Turf Club are prominent institutions, and conveniently situated and well-managed public baths are provided, together with facilities for boating. The Western Australian, Union, and National Banks have branches in the town. The wharf is a substantial structure extending into water sufficiently deep to enable large coastal steamers to come alongside. There is direct sea communication with Melbourne, Sydney, and Adelaide, and the Associated Steamship Company's vessels frequently visit the port. A State-subsidised steamer runs twice a week between Geraldton and Fremantle, carrying goods and passengers at low rates. Several fishing boats ply their calling in the waters outside the harbour, and send tons of fish weekly to the metropolis and the Murchison Goldfields. Seven hotels cater for the wants of the public. At the Abrolhos, which is 40 miles from the Port, a large guano industry is being worked, giving employment to a great number of men. Geraldton is the northern outlet for the Midland Railway, and the starting point for the Northampton and Murchison and Walkaway State lines. The town is lighted with gas. The population is over 2,500.

Gingin, a small township on the Midland Railway, about 50 miles North of Perth, is the centre of a rich agricultural district. The land seems particularly favourable to the cultivation of oranges, some of the finest in the State being produced there. The township stands on the Gingin Brook, a stream which runs

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throughout the whole year, and discharges itself into the Moore River. Gingin is a municipality. The population is close upon 200. There are here a railway station, schoolhouse, hotel, post office, police station, two stores, an Anglican church, Wesleyan church, and about 40 dwelling houses. Wallaby, kangaroo, and duck abound in the vicinity of the townsite, and afford excellent shooting for sportsmen.

GOOMALLING is a coming district, offering every inducement to the selector. It is situate N.E. from Newcastle about 30 miles, and is connected with Northam, 30 miles off, by rail. Of late extensive settlement has taken place, with most satisfactory results. The soil is excellent, and the rainfall of good average. A fine two-storied brick hotel and several business places are in course of erection, and a blacksmith's shop is in full work.

GOONGARRIE, formerly known as the 90-Mile, is on the railway to Menzies, and about 26 miles South of that town. During the last few months there has been a decided revival in mining, with encouraging results. There are 20 head of stamps erected. Population, including Comet Vale, eight miles distant, 100.

GOOSEBERRY HILL has, within the last few years, become a great strawberry-growing centre. There are a Government school and post office, and a train service twice daily over the Government line to Pickering Brook from Midland Junction. The population within a five-mile radius is about 300.

GRASS VALLEY is a rising township 12 miles East of Northam, on the Yilgarn line. The cutting up of the Throssell area of 17,000 acres of fine land surrounding the place has given a great impetus to the district. In the neighbourhood are some very fine farms, on some of which irrigation is practised. The township has postal and telegraphic communication, an agricultural hall, a Government school, a blacksmith's shop, two stores, and an hotel, in addition to several private houses. There is also a race club and an athletic club.

GREENBUSHES is the centre of the Greenbushes tinfield. It has five hotels, a court-house, registrar's office, post and telegraph office, public school, miners' institute, a Government battery, and two smelting works. Population over 700.

GREENHILLS is an old agricultural settlement in the York district, 91 miles S.E. from Perth, and connected with the town of York by a line of railway 14 miles in extent. Most of the good land has been taken up for cultivation. The principal products are hay and corn. On a limited scale, all kinds of stock are raised. There are one or two good orchards in full bearing. Greenhills has hotel accommodation, an agricultural hall, a State school, and Anglican and Wesleyan places of worship. The wants of the district are attended to by a roads board. Population about 200.

GREENOUGH.—This is admittedly one of the best agricultural centres of the State. It is situated within a few miles of Geraldton.

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The soil is most luxuriant. For over 40 years the land has been cultivated, and, without the use of fertilisers, has given magnificent results. In the early days, a yield of nearly 40 bushels to the acre was by no means rare. Artificial manures have recently been availed of by some of the farmers, and under these improved conditions the extraordinary virtues of the soil will be preserved. The farms as a rule are well stocked, and pig raising and poultry breeding have been found to be a profitable adjunct to husbandry. Fruit-growing is carried on to a limited extent, but the force of the strong winds along the flats of the Greenough is a bar to the general pursuit of the industry. The district has telegraphic communication, and is connected by rail with Geraldton and Perth. An up-to-date flour mill is erected in a central position, and grinds wheat for the farmers. The centre possesses several places of worship, State and private schools, mechanics' institutes and public halls, and one hotel. On nearly all the farms there is modern labour-saving machinery. Greenough has a roads board, a farmers' club, a farmers' association, and a turf club.

GUILDFORD is a municipality situated in the centre of a thriving agricultural district at the junction of the Swan and Helena Rivers, about nine miles East from Perth. It is a picturesque town, in a pleasant and healthy situation, and is, from its proximity to the capital, an important and fashionable suburb of Perth, and a favourite place of residence for persons engaged in business in the city. The population is steadily increasing; at the census of 1901 it numbered 718 males, 741 females; total 1,459. In 1903 the total had risen to 1,666, viz., 812 males and 854 females. There is here a court-house, police station, post and telegraph office, railway station, mechanics' institute, and other public buildings. The places of worship are an Anglican Church, a Roman Catholic Chapel, and a Wesleyan Chapel.

GULLEWA is a township and mining centre about 35 miles South-West of Yalgoo, and about 18 miles South of Wurarga railway station. There is a bi-weekly mail service from Yalgoo by rail to Wurarga, thence by horse and trap to Gullewa. The place has also telegraphic communication with Yalgoo. There are two hotels and a store, also a Government school and a police station. Two mines are being worked, each with a 10-head battery and pumping and cyanide plants. Recently a discovery of deep alluvial ground was discovered, resulting in a rush of miners to the locality. Latest reports seem to show that the gold is poor and hardly payable. Most of the surrounding country is held under pastoral lease, and is well suited to that industry. The population of the police patrol district was, before the influx of alluvial miners, 159.

HALL'S CREEK is the official and business centre of the once flourishing Kimberley Goldfield, and has a population of 14 inhabitants. The public buildings consist of a residency, warden's quarters, post and telegraph office, court-house, miners' institute, and police station. It is connected with Perth by telegraph, and is situated about 304 miles East of Derby, and 213 miles South of

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Wyndham. The population of the Kimberley Goldfield district is about 90. The cattle stations on the Behn, Denham, Panton, Margaret, Elvire, and Ord Rivers, and on Turkey Creek and Sturt Creek are in a most flourishing condition, and are at present partially supplying the Perth and other Southern markets.

The alluvial still keeps a few fossickers engaged. The road from Wyndham to the field is well watered, and there is plenty of food for stock. The climate is very good on the field; there is excellent water, and no fever or climatic diseases prevail. There are two mails every month, one from Fitzroy, the other from Wyndham. A post office is established at Turkey Creek, on the Wyndham Road, which facilitates the line-repairing work and prevents the previous vexatious delays.

HARVEY is an agricultural settlement. In the vicinity are the Yarloop and other saw mills, and in the district are the drainage works recently undertaken by the Government. There is an agricultural hall. The population in the Murray district is about 280, and in the Wellington district about 115.

HOFFMAN'S MILL is a timber station at a distance from Bunbury of 36 miles by Government railway, and nine miles from Yarloop by Millar's Karri and Jarrah Forests Company's private railway line. It is situated at the base of Mt. William. The people living at this mill are all employees in the timber trade, and the Government has established a school at the place for the benefit of their children. The mill is connected by private telephone with other centres. Population, about 200.

HOPETOUN, *see* Ravensthorpe.

IRISHTOWN, about five miles North-West of Northam, is the centre of an old-settled and thriving agricultural district. The principal buildings in the townsite are the Agricultural Hall, the Roman Catholic church, and a small schoolhouse. The population of the immediate district is about 450.

ISRAELITE BAY is 185 miles East from Esperance, with which it has communication once a fortnight by steamer. It has a post and telegraph office. There is a good harbour, with jetty for ships' boats, and with crane and tramway.

JANDAKOT, situated about eight miles from Fremantle, with which it is connected by road, is the chief centre of the Fremantle agricultural district. It has an Agricultural Hall, which at present is also utilised as a school. There are also a church and an hotel. Some excellent vegetable gardens are found in the district. The land is in many parts swampy, and there are two very fine lakes of fresh water, known as Bibra Lake and Jandakot Lake. These contain water all the year round. Population, upwards of 800.

JARRAHDALE is a flourishing and busy timber station, worked by the Rockingham Railway and Jarrahdale Timber Company, situated in the Murray District, seven miles from Jarrahdale Junicton on the South-Western Railway, and about 30 miles from

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Perth. The timber is shipped from the port of Rockingham, to which it is conveyed by rail. The population is about 800. There are several good stores, and two Government schools. Anglican and Wesleyan churches have been erected. There is also a public library and reading-room and assembly hall. The timber company work four large mills. As a health resort, Jarrahdale is largely patronised during the summer months. There are two good hotels. A Masonic temple has recently been erected. In the neighbourhood are the Whitby falls.

JARRAHDENE is a large timber station owned by the M. C. Davies Co., Ltd., connected with Port Augusta and the Hamelin by a railway line, which passes the mills at Boranup and Karridale. All these places are within 30 miles of Busselton. Population, about 90.

JAURDIE HILLS and DUNNSVILLE are situated 12 miles N.W. of Kunanalling. At these centres there are a few gold-producing mines, the principal ones being the Jaurdie Hills G.M. Co. and Jaurdie Hill-Boulder. Population, about 100.

KALGOORLIE, 380 miles East of Perth, is one of the principal towns of the Eastern goldfields, being also the headquarters of the resident magistrate of the East Coolgardie Goldfield, whilst the warden, who resides at Coolgardie, visits Kalgoorlie and district as occasion may require. It is the scene of the most active mining operations in the State. The country for about five or six miles South and a mile or two North has been almost wholly taken up under gold mining leases. A large quantity of crushing machinery is in operation, there being something like 400 stampers at work, besides Huntington mills, Krupp's ball mills, and cyaniding plants. The celebrated *Brown Hill, Kalgurli, South Kalgurli, Associated, Great Boulder, Lake View, Ivanhoe, Associated Northern, Golden Horseshoe*, and *Boulder Perseverance* mines are in the vicinity. Kalgoorlie supports a daily newspaper. The town is a municipality, represented by a mayor and twelve councillors. Electricity is used for lighting the streets, and is largely used by householders. The plant belongs to the municipality, the profits going towards the general improvement of the town. Water is supplied from the Eastern Goldfields water scheme, and a copious supply is always available, being pumped up in pipes from the Mundaring reservoir near Perth. Lines of railway connect Kalgoorlie with the Boulder, Kanowna, and the mining townships to the North. Population, within the municipality, 3,904 males, 2,886 females; total, 6,790. There is a railway loop line to Brown Hill, where a number of free areas have been thrown open for residential purposes. Electric tramways are constructed from Kalgoorlie to Boulder, and to the different suburbs—Piccadilly, Lamington Heights, Mullingar, Fimiston, etc. Swimming baths have been completed under control of the municipal council. The town is a thriving one, and on all sides improvements, effected and being effected, may be seen.

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Kanowna, formerly known as "White Feather," is situated 12 miles North-East of Kalgoorlie. In addition to a stone and brick building comprising the court-house and State offices, there is a similar stone building in which is carried on the business of the post and telegraph department, money order office, and savings bank. There are also a subsidised hospital, a State school, and Anglican, Wesleyan and Roman Catholic Churches, besides a miners' institute and public library. The water supply is obtained from a Government reservoir and house tanks, and during the rainy seasons fresh water lies for many months in numerous claypans in the district. There are 200 stamps and 16 other mills erected in the district for ore reduction purposes, together with 65 cyanide vats. The municipality is under the control of a mayor and nine councillors. The population is 1,200, viz., 750 males and 450 females.

Karridale is a large timber station, and is situated by road 30 miles South-by-West of the Vasse. It is connected by a tramway line with Port Hamelin, from which is shipped the valuable karri timber cut upon the station. In the neighbourhood of the mills are extensive swamps, and about eight miles away flows the Blackwood River, the home of swan and duck. A most interesting and peculiar natural phenomenon is to be seen in this neighbourhood; the walls or banks of sand, from two to three miles long, and from 70 to 90 feet high, are gradually advancing from the seaboard over the land at the rate of about one to three inches a year. Between this place and the Vasse signs of coal have been found. The population of Karridale varies with the ups and downs of the timber trade; at the time of the 1901 census it numbered 230. Upon the renowned Cape Leeuwin, the most South-West point of the State, which is situated about 23 miles from Karridale, a lighthouse of the first-class is erected. The light is visible at a distance of 23 miles, and thereby the neighbouring waters are rendered comparatively safe. Port Hamelin, in the vicinity of Karridale, has a population of about 50 persons.

Katanning is a townsite on the Great Southern Railway, situated by rail 225 miles from Perth, 115 miles from Albany, and 127 miles from Beverley. There is excellent agricultural land in its vicinity, and the land is being rapidly taken up under the Homestead and other Acts. From the opening of the Government Land Agency at Katanning, on the 20th March, 1897, to the 31st December, 1903, a total of no less than 6,803 applications were received, the area applied for aggregating 1,682,956 acres. Of these, 3,956 applications were for 697,470 acres of first-class Conditional Purchase land, 2,067 applications for 329,126 acres of Homestead Farm land, 246 applications for 196,218 acres of second-class Grazing Leases Conditional Purchase land, and 246 applications for 460,142 acres of third-class Grazing Leases Conditional Purchase land. All these were subject to compulsory conditions of improvement. In addition, 31 applications for 45,849 acres of Poison Leases, 167 applications for 562,394 acres of Pastoral Leases,

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five applications for Special Leases, five applications for Quarrying Licenses, applications for 995 Town Lots, for 193 ordinary Suburban Lots, and for 255 Suburban Lots for cultivation, 947 applications for Transfers, 553 applications for Crown Grants, and 417 applications for Loans from the Agricultural Bank to the amount of £54,115 were received during the same period. The total revenue of the office, from all sources, amounted to £70,717. The above return includes selections East and West of the Great Southern Railway line from Mount Barker on the South to Pingelly on the North. Fruit culture is being largely entered into in this district, and both soil and climate appear to be most suitable to the several varieties of English fruit. A large roller flour-mill is also kept in active operation, grinding wheat produced in the district. Settlement of the land in the vicinity of the railway has received a great impetus since the purchase of the line by the Government. The population of the Katanning Roads Board District is about 1,800. There is here a fine up-to-date wine cellar, turning out 6,000 gallons annually, and the output of which is increasing.

KOJONUP, one of the older townsites of the State, is situated on the old mail coach road between Albany and Perth, about 160 miles from the metropolis. This district is coming to the fore, as its stock-raising capabilities are now greatly appreciated. The recent agricultural shows have proved the good quality of the young stock—horses, cattle, and sheep—produced in the Southern districts. For cereals, fruit, and vegetables, the land has been found very suitable. Kojonup has a post office, school, and agricultural hall. Population of district, about 345.

KOOKYNIE is a flourishing mining centre about 37½ miles N.E. of Menzies. There are seven hotels, two banks—branches of the "Union" and "W.A."—post and telegraph offices, a registrar's office, police station, public school, and Government hospital. There are six batteries at work, representing 130 head of stamps. Water for crushing is obtained from the mines, that for domestic purposes from fresh water wells in the immediate vicinity. Kookynie is connected with Perth by rail, and has a daily mail service. Warden's and local courts are held monthly. Population, 1,600.

KUNANALLING is situated about 25 miles North by West of Coolgardie, and is an important mining township. It has four large mines in active operation. There are three hotels, a police station, post and telegraph offices, a public school, and many private residences. There is coach communication once daily with Coolgardie. Population, 300.

KURNALPI, about 40 miles East of Kanowna, is now almost deserted. There is one hotel, a police station, miners' institute, and telephone office. A five-head battery and two six-acre leases are still being worked. About 40 alluvial miners are working around the locality. Potable water is obtained from a shaft some three miles away. *Mulgabbie* is situated about 36 miles North-Easterly;

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here a wayside house exists, and there are 30 to 40 miners working claims. A small three-head battery is being worked about four miles East. Water is obtained from the Government dam, which is situated about three and a-half miles East.

LALLAROOKH, to the North-West of Marble Bar, and South-West of Cook's Bluff, is a promising reefing centre. There is splendid pastoral land in the vicinity. The place has an hotel and stores. A 10-head battery is erected in this district. Population, between 40 and 50.

LAVERTON is an important and growing town, 23 miles in a straight line E.N.E. from Mount Morgans, and 25 miles by the Government cleared road. It is the business centre for a large number of outlying mines, including the "Ida H.," "Lancefield," "Craiggiemore," and "Childe Harold." A registrar's office is established here, and a warden's and a local court are held. Post and telegraph offices and a police station and quarters have been provided. Branches of the W.A. Bank and Bank of Australasia carry on business in the town. Besides numerous shops, there are four hotels. Laverton is now connected with the railway system of the State, the first train ruuning through on 16th December, 1903. Population, on 31st December, 1903, 315. A State battery is erected, and has been of considerable assistance to prospectors in opening out and developing their leases.

LAWLERS, the principal town of the East Murchison Goldfield, is 85 miles North-West of Leonora and 170 miles East of Mount Magnet. Population, about 700. The public buildings are:—Warden's court and offices, post and telegraph offices, Union Bank. Bank of New South Wales, miners' institute, hospital, and Government school. There are six hotels, a brewery, and a number of stores. A weekly newspaper is published in the town. The mail services are:—A tri-weekly with Leonora, a weekly with Mount Magnet, and bi-weekly mails with the outer centres—*Kathleen, Kingston, Leinster, Ogilvie's, McCaffrey's, Sir Samuel, and Wiluna* (Lake Way); also a weekly mail with *Woodarra* (Lake Darlôt).

LEEDERVILLE, a municipality to the West of Perth, is one of the most flourishing suburban towns in the vicinity of the metropolis. It is governed by a mayor and council, and is increasing in population at a rapid rate. Population, at end of 1903, about 3,900. Capital value of property, £244,504; annual value, £28,791.

LENNONVILLE.—This is a prosperous townsite, located beside the railway, about six miles North of Mount Magnet. There are some good mines close by, giving employment to a large number of men. The public buildings comprise a railway station, State school, police station, post and telegraph office, and Miners' Hall. There are, in addition, four hotels and a wine saloon, as well as the usual stores. The water supply is provided by a privately-owned shaft, whence it is conveyed to the town through pipes. The population is about 350 males and 200 females. A State battery crushes ore for the public.

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LEONORA is an important township in the Mount Malcolm district of the Mount Margaret Goldfield. It is situated 12 miles West of Mount Malcolm, and is the centre of a number of important mines, which lie within a radius of five miles. There is a post and telegraph office, and police quarters, and there are five hotels and several stores in the town. The railway connects this township and Mount Malcolm with Perth, *viâ* Menzies. The *Sons of Gwalia* mine is two miles from the town, and is the most important mine at present on the Mount Margaret Goldfield. The main incline shaft has now reached a depth of 1,700 feet. Leonora was proclaimed a municipality towards the end of 1900. A local court is held here on the second Tuesday in each month. Branches of the Western Australian and National Banks are in existence. Population: Males, 359; females, 206; total, 565. Leonora is an important mining centre, and many promising properties are being opened out here, which give good indications of eventually proving permanent and payable mines. A State battery is in existence, and has materially assisted in the development of the various auriferous deposits to be found in this locality. Coaches leave here for Lawlers on Mondays, Wednesdays, and Saturdays with mails.

LOWER NICOL is about 12 miles West of Roebourne. About 10 years ago a large amount of alluvial gold was obtained here. Since then several gold-mining leases have been worked. Population, 17.

LUNENBERG is a station on the railway between Brunswick Junction and Collie, with a station-master's house and half a dozen platelayers' cottages; there is no settlement in the immediate neighbourhood, but at *Worsley Siding*, about a mile nearer Collie, Millar's Karri and Jarrah Co., Limited, have one of their mills. The Company's trade is chiefly export. The total population is estimated at about 50.

MALCOLM is a townsite on the Mount Margaret Goldfield, situated 140 miles North-North-East of Coolgardie, and 64 miles from Menzies (latitude 28° 56′, and longitude 121° 30′ East). Population: Males, 330; females, 70; total, 400. It has five hotels and a brewery. There is a branch of the Western Australian Bank here. The public buildings are the Warden's offices, survey office, post and telegraph offices, police quarters, and hospital. The local court is held the first Wednesday in each month. The town is connected by telegraph with Laverton, Mount Morgans, Murrin Murrin, Leonora, and Diorite King, all in the same goldfield. Good water in abundance is obtainable everywhere by sinking for it to moderate depths. There is a weekly newspaper published. The extension of the railway from Menzies to Leonora passes through the townsite. Towards the end of 1900 Malcolm was proclaimed a municipality. It is connected now by rail with Mount Morgans and Laverton.

MANDURAH, picturesquely situated on the shore of Peel's Inlet, an estuary of the Murray, into which flow the Serpentine and

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Harvey Rivers, is on a limestone formation, similar to Fremantle. The waters abound with fish—kingfish, whiting, and mullet being the best. There is plenty of good land in the neighbourhood awaiting cultivation. The place has telegraphic communication and hotel accommodation, which advantages, combined with excellent fishing, boating, and fine scenery, make it a desirable resort for town visitors. There are a church and an Agricultural Hall. Mandurah is only 12 miles from Pinjarra, and there is a good hard road nearly the whole distance. The mail coach leaves four times a week, and also takes passengers. Population, about 120.

MARBLE BAR is the chief town of the Pilbara Goldfield district, and is the seat of the warden and resident magistrate. It has a weekly mail service, and is connected with Perth by telegraph. There is excellent pastoral land in this district, about 50 persons being employed in pastoral pursuits. There is a population of about 300 in the district. Marble Bar is situated near the Coongan River, about 100 miles South of the port of Condon, and is a centre of mining and pastoral industries. It has two hotels and numerous shops, and supports a weekly newspaper. There is also a branch of the Union Bank, and the head quarters of the District Engineer of the Goldfields Water Supply Department for the Pilbara Goldfield. At present there is only one crushing plant at work. A local court is held the first Wednesday in every month. The hospital and public offices are commodious structures. The town possesses a Miners' Institute, with a good supply of State and Commonwealth newspapers.

MAUD'S LANDING is in the Ashburton magisterial district. It is an open roadstead, with a reef which forms a protection from Southerly winds, situated about 60 miles North of Carnarvon, but South of the North-West Cape. A jetty 1,500ft. long has been built here to accommodate two schooners, with a maximum depth at high tide of 17ft. At the end of the jetty a large shed has been erected to facilitate the shipping of wool from the surrounding sheep stations. Large ships can anchor safely some distance out with 22ft. at low water, and be lightered from the shore.

MECKERING is a rising township on the Yilgarn railway line, about 23 miles East of Northam. It is the centre of the Meckering farming area. It has a fruitful light soil, which was formerly considered unfit for agriculture. The district is now closely settled, chiefly by farmers from the Eastern States. Heavy and early yields of hay are obtained. The township comprises, amongst other buildings, a post and telegraph office, a Government school house, where the average attendance is about 40, two stores, chaff cutting and grading works, an agricultural hall, an hotel, and several private residences. The population is about 180.

MERKATHARRA is a township situated about 25 miles Northerly from Nannine. It is a promising mining centre. There is a State battery kept constantly working. There are two hotels, and several shops. The population in and around the town is about 180.

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MENZIES is the chief town of the North Coolgardie Goldfield, and is situated about 92 miles North of Coolgardie. It is the head quarters of the Warden, and is a municipality. The Government buildings consist of warden's and resident magistrate's court-houses, post and telegraph and other offices; a Government hospital, police station, and railway station. There are several batteries at work, representing 113 head of stamps, also a State battery of 10 head, recently completed. Water for crushing purposes is obtained from a Government well on the Mulline road, four miles West of Menzies. Water for domestic purposes is procured from fresh water wells at Picton, about three miles East of the town, where a fairly plentiful supply is available. The water supply is further augmented by the water conserved in the Government tank, which is constructed of concrete, and has a capacity of 3,049,410 gallons. This tank is situated about one and a half miles South-East of Menzies, and from it water is now pumped into the town. There are 10 hotels, four churches, Salvation Army barracks, a Masonic hall, two banks, a town hall, and a public library. A volunteer corps has been formed, and the members have erected a large drill hall, and formed a rifle range and erected targets close to the North-West boundary of the town. The civilian rifle club also has an up-to-date range South-East of Menzies. Population, 1,875. At a distance of 58 miles East-North-East is *Yerilla*, once an active mining centre.

MERTONDALE.—The progress of this townsite has been most disappointing, owing to the very tardy development of the leases in its vicinity. It lies in a direct line 18 miles North from Malcolm, and is reached by a Government cleared road, 20 miles in length. One or two shops and an hotel are at the present time the only business places. The branch of the National Bank, which was opened here in 1901, was closed during the early part of 1903. Coaches run from Malcolm with mails on Mondays, Wednesdays, and Fridays.

MIDLAND JUNCTION is distant about two miles from Guildford, and 11 from Perth. It forms the junction for several important lines of railway, and is the site of the new Government Railway Workshops, which are among the most extensive and best appointed in Australia. Most of the workmen have now been transferred from Fremantle, and the remainder will probably be transferred at an early date. The Midland Railway Company also have their workshops here. It is a municipality, with a population of over 2,200. There are six hotels, a public hall, and a new railway station of considerable size, also a new post office and State school. There are already Anglican, Roman Catholic, Wesleyan, Congregational, and Presbyterian places of worship. Owing to the quality of the clay in the neighbourhood having been found suitable for the brick-making industry, the kilns are both numerous and prosperous. In the vicinity, on the Darling Range, are situated the mills of the Canning Jarrah Company, which has a private railway to Pickering Pool, whence the Government line connects with the Junction; also the *Greenmount* and other quarries, the *Darlington* wineries, and the small settlement, *Smith's Mill.*

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MINGINEW is situated 79 miles from Geraldton and 227 miles from Perth, on the Midland Railway. It is the centre of a pastora and agricultural district, and is the trucking station for fat stock from the Murchison districts for the metropolitan markets. Large numbers of sheep and cattle regularly arrive at Minginew from the back country, and are despatched to Perth and Fremantle by rail. There are post and telegraph offices, State school, police station, and two hotels at Minginew. An Anglican church is in course of erection. The town possesses a roads board, known as the Upper Irwin Roads Board, whilst sanitary matters are controlled by a local Board of Health. There is some rich agricultural country in the vicinity of Minginew, but the bulk of it is included in the Midland Railway concessions. Mixed farming is carried on in the neighbourhood with much success. Indications of coal have been discovered within a mile of the township, and a bore, subsidised by the Government, is being put down by a private syndicate to test the locality. Copper lodes have been struck at Arrino, which is only 22 miles from Minginew, and the prospects are said to be good, though little ore has, as yet, been sent to market.

MOOLYELLA TINFIELD is 12 miles North-East of Marble Bar. It has a monthly mail service. A large quantity of stream tin has been obtained from this field. There are on the field one hotel, a boarding-house, two stores, and a butcher's shop. Population, about 130, including fossickers.

MOORA, a small township on the Midland Railway, about 100 miles North from Perth, is surrounded by some splendid agricultural country, some of which is at present annually producing heavy crops. It also forms the centre for cattle-trucking, and trade consequent thereon, for some of the finest squatting stations in the State. Population, about 25.

MOORUMBINE is one of the oldest agricultural settlements in the Beverley district, six miles East from Pingelly, and 136 miles South-East from Perth, near the Great Southern Railway line. There are here, amongst the public buildings, a State school, an agricultural hall, and an Anglican Church. It also has its roads board. Population, about 150.

MORNINGTON.—The Mornington Mills are situated 26 miles from Bunbury, by the S.W. Railway line, and six miles by private line. This is one of the largest timber stations in the State. It has a post and telegraph office and a Government school. The company has also a public hall and library for the use of its employees. Population, about 550.

MOUNT BARKER is a township on the Great Southern Railway, 38 miles from Albany, and 302 miles from Perth. The district is noted for its rich fruit-growing lands, apples thriving particularly well. There are several large orchards close to the townsite. Being 800 feet above sea level, the climate and soil are well adapted for the growth of various grain crops and vegetables, the yield per acre being extremely good. The principal buildings include a church

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(Anglican), school, railway station and refreshment rooms, public hall, post and telegraph office, two hotels, and a police station. There is a daily train service from Albany and Perth. Population, about 80.

MOUNT IDA is a centre about 70 miles N.W. of Menzies. Mining in this district is beginning to show signs of a revival. There are 20 head of stamps on the Copperfield leases. Population, 119.

MOUNT KOKEBY is a small township, eight miles from Beverley, on the Great Southern Railway. It has a State school, a store, and a post office.

MOUNT MAGNET is a township on the Geraldton-Nannine Railway, about 46 miles South of Cue. Mining in this locality is in a depressed state at present, the only mine of any importance carrying on profitable work being the Morning Star, which provides employment for a good number of workers. The public buildings comprise a railway station, post and telegraph office, court house, Mining Registrar's office, hospital, and police station. There are, in addition, Anglican, Roman Catholic, and Wesleyan churches, municipal chambers, a miners' institute, six or seven hotels, and the usual stores. The town is a municipality, with a mayor and council. The water supply is the best in this goldfield, many of the houses having their own wells of good water. There is also a public well in the main street, with a mill and large elevated tank, from which it appears to be proposed to lay water on to the houses. The population is estimated at 421 males and 228 females; total, 649.

MOUNT MORGANS is the principal town in the Mount Margaret District of the Mount Margaret Goldfield, and is, in fact, the most central town on that goldfield. It is also the headquarters of the Warden. The Westralia Mount Morgans and the Millionaire mines adjoin its boundary on the East, and many very promising leases lie within a radius of four miles around it. A local court is held on the third Monday in each month. A municipality was proclaimed towards the end of 1900. Post and telegraph and police quarters and lockup have been provided, and there are six hotels and numerous shops in the town. Branches of the National and W.A. Banks have been opened. Mount Morgans is distant by road 39 miles, and lies 36 miles in a straight line East-North-East from Malcolm. Population, 850 males and 340 females; total, 1,190. The population being declared over 1,000, the municipal council consists of a mayor and nine councillors. The extension of the railway, from Malcolm to Laverton, passes through the town.

MULLINE is situated about 32 miles West of Menzies, and around this centre there are many highly payable leases. A 20-head battery and cyanide plant have been erected by the Government, and have proved a great boon to the prospectors of this district. Mulline has a bi-weekly passenger coach and mail

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service with Menzies, and is in telegraphic communication with Coolgardie. It has two hotels, a miners' institute, and a branch of the Union Bank of Australia. The district is prosperous, and mining is in an excellent condition. Population, 171.

MULWARRIE is a mining centre situated about 35 miles West-South-West of Menzies, and about seven miles in a Northerly direction from Davyhurst. There are two hotels, also post and telegraph offices and a Mining Registrar's office. A Government battery of 10 head is in operation. There is also a subsidised hospital, which serves the whole of the Ularring District. Population, 176.

MUNDARING has a population of about 250, chiefly wood-cutters and labourers. It is the station from which the line to the Mundaring Weir starts. The latter is distant about five miles, in a South-East direction, and is the reservoir and catchment area for the Coolgardie Water Supply Scheme. The place has a post office, telegraph station, public hall, and one hotel.

NANNINE is a township situated about 50 miles North of Cue, and is now the terminus of the railway. Although the locality is highly auriferous, and is the oldest mining centre in the Murchison Goldfield, having been discovered by Messrs. Macpherson and Peterkin in the year 1890, there is but one mine of any importance in active work, namely, the Robinson. There is a mining registrar's office, also post and telegraph office, four or five hotels, several stores, a miners' institute, bank, and State school. Religion is represented by Anglican and Roman Catholic priests. Warden's and local courts are held monthly. A hospital exists. The affairs of the town are under the authority of a mayor and council. The water supply is from several wells about the town, the quality being fairly good, but the supply inadequate. A scheme is now in hand for bringing water by pipe line from a point two and a-half miles distant. The railway station serves as a point from which merchandise of all kinds is distributed among the squatters, and also among the several mining districts such as Abbotts, Peak Hill, Meckatharra, Gabanintha, and Lake Way. This business is of considerable profit to the town. Population: 200 males, 60 females; total, 260.

NARROGIN townsite is situated by rail 162 miles from Perth and 178 miles from Albany. The surrounding district is one of the most fertile along the Great Southern Railway line, equally suitable for cereals and fruit-growing and stock-raising. The land is more undulating than in some of the other districts. Very little difficulty is experienced in obtaining fresh water; soakages are plentiful. A large number of selectors from the Coolgardie goldfields and the Eastern States have recently settled in this vicinity, and are making good progress. Narrogin has made great strides during the past 18 months, and new houses and shops are springing up in all directions. A new hotel has just been completed, and a commodious coffee palace is about to be built. There is a recently-built court-house and police station, and a permanent lands office has been established to deal with the greatly increased land business. Three

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banks have offices in the town, the Western Australian bank having had a large banking house erected. The contemplated Collie-Narrogin railway appears already to have given a great impetus to the district; along the course of this railway thousands of acres of good land will be brought into touch with the general railway system. The land East of Narrogin is also being rapidly taken up, and a projected railway in this direction is further encouraging settlement. A health board and progress committee look after the interests of the inhabitants. Narrogin is the centre of the Williams magisterial district. Population of Narrogin and surrounding district, 1,720. As showing the increase in population, the school numbers have doubled themselves during the past 12 months. A brewery is about to start operations, and a large and up-to-date flour mill is also ready for work.

Newcastle, or Toodyay, as the old townsite was called, is a small, prettily-situated town on the Avon River, about 50 miles East of Perth, at the terminus of a branch of the Eastern Railway. The surrounding country is principally devoted to the cultivation of cereals and raising of stock. The land is pronounced by experts, and has been proved to be, admirably adapted for the growth of vegetables, fruit, and wine. When the capabilities of the soil are more fully appreciated, there is every prospect of this locality becoming one of the chief centres of the wine industry of the State. Population of municipality, over 350. The town is steadily progressing, and the surrounding district is becoming famous for its splendid wheelwrighting timber, large quantities of which are exported annually. The district is also noted for its pastoral capabilities; a considerable quantity of fat stock is annually forwarded to the city and goldfields. The public buildings consist of a court-house, post office, council chambers, and the Western Australian Bank. There are three commodious hotels in the township.

New Norcia is situate 48 miles North of Newcastle. At New Norcia a mission for the civilisation of the aborigines was founded in 1846 by the Spanish Benedictine Order of Monks, under His Lordship the late Bishop Rosendo Salvado, who died in 1900 in Rome. The mission is now under the charge, as Superior, of the Right Rev. Fulgentius Torres, O.S.B. Here the aborigines and their children are taught, with very satisfactory results, to do all kinds of agricultural and other farm work, for which they show great aptitude. The monks, besides horse-breeding and cattle and sheep-raising, grow sufficient wheat for their own consumption, and this they manufacture into flour on the premises. Fruits (fresh and dried), tobacco, and also olive oil, are produced in quantity. Close to the mission is a substantial courthouse, and also a post office. Population, about 500.

Niagara, 30 miles North-East from Menzies, has a population of 412, and is a centre of much activity in gold-mining operations. It has a daily postal service, a daily train, and telegraphic communication *viâ* Menzies. Water for crushing purposes is plentiful.

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A large reservoir, capable of holding forty millio
constructed three miles South of the township.
of stamps in operation, also a State battery of

NORSEMAN, the official and business
Goldfield, is situated about 110 miles South
within 126 miles of the port of Esperance
magistrate's, and local courts are held, and a
ment buildings, including court-house and
erected. The Western Australian Bank has a
The township is situated within easy appr
possesses a municipal council chamber, three
five hotels, two breweries, and a number of
health of the township is exceptionally good.
the town and to the mines from the Govern
miles South-East of Norseman, which has a
gallons. Population of the municipality,
miles North-East of Norseman is *Buldania*.
in the vicinity are *Lady Mary*, five miles to the
mail service, and *Peninsula*, about 20 miles N

NORTHAM is a township situated abo
Newcastle, on the banks of the Avon River, and
on the main Coolgardie line. Surrounded
excellent arable land, which is principally de
cereals and fodder, and the raising of stock.
for all produce or stock sent from the di
Goldfields, and has therefore risen rapidly in
opening of the railway, being now the scene
mercial activity. The land in the neighbour
its value for farming pursuits, is well adap
vegetables, fruit, and vines, and good progre
cultivation. Since the opening of the goldfie
district has received a great impetus, and a la
crop. Bacon-curing is also carried on to
boasts of one of the finest town halls in W
completed at a cost of nearly £4,300, the
being equal to most of the halls in Perth or F
public buildings comprise a large railway
court-house, a well-appointed hospital,
free library, railway institute and reading ro
office, three banks (Western Australian, Nat
churches, Salvation Army barracks, temper
parish hall in connection with the Church of E
six fine hotels and a flourishing club. Th
electricity, under the control of the munic
also a telephone exchange.
Reticulation works have b
latter being obtained fro
work was about £8,000.
and nine councillors, and
tural implements are ma

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the various factories employing a great number of men. Branches of the Rechabite, I.O.G.T., Foresters, Druids, Free Gardeners, and Hibernian lodges exist in the town. There is also a Masonic hall, and a large number of handsome private residences. The Northam Race Club is one of the most flourishing institutions in the State, and, at a privately-owned course, the club has a grandstand capable of seating 1,000 persons, as well as every racing convenience. Population, about 2,500.

NORTHAMPTON, situated about 35 miles North of Geraldton, is the terminus of the Geraldton-Northamption railway, and one of the principal lead and copper mining centres of the State. There is fair agricultural land in the neighbourhood. Vegetables are grown in considerable quantity during the summer, and sent to Geraldton, Perth, and the goldfields. About 35 miles away, near Lynton, excellent salt is found. Kangaroo skins are exported, the amount of the export recently being no less than £170 in two months. Hotel accommodation is good. Northampton is surrounded by excellent pastoral areas, which are fully stocked with sheep, cattle, and horses. Population, about 350.

NORTH FREMANTLE, originally part of Fremantle, was declared a municipality on the 13th September, 1895. Its situation makes it one of the most healthy towns in the State, standing, as it does, on a peninsula formed by the Swan River on the one side and the Indian Ocean on the other. The Perth-Fremantle railway line runs through the town, and a line also runs to the Rocky Bay quarry, in the Northern part of the township, where the stone for the Fremantle Harbour Works was obtained. In this locality it is proposed to set aside 80 acres for a public park. The population is 2,050 males, 1,810 females; total, 3,860. The Recreation Reserve is prettily situated on the bank of the Swan River, and has a pavilion capable of seating 600 people. Within the town limits are located timber yards and saw mills, a tannery and boot factory, steam laundries, aërated water and cordial factories, also a soap and candle factory and warehouses. Extensive wharves, docks, and other works in connection with the Fremantle Harbour Works are within the municipality. There are in the town four churches, schools, a literary institute, branches of friendly societies, a town hall and municipal offices, Government stores, and two public halls. On the reclaimed portion of the Rocky Bay quarry land, large engineering and carriage building works are being erected, which, it is anticipated, will give employment to over 200 men. There are nine and a-quarter miles of macadamised roads and six and a-half miles of footpaths. The net annual value of ratable property for the year 1903 was £25,800.

NULLAGINE is 70 miles from Marble Bar. Population, between 70 and 80. It is the centre of a district extending to the 40-mile country, where quartz and alluvial mining is carried on, principally at Middle Creek, Sandy Creek, and Mosquito Creek. There is a large area of conglomerate, carrying gold. In the past this was one of the most important alluvial fields in the State.

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Diamonds have been found, but up to the present none of any great commercial value. There is a weekly mail service, and the district is connected with Marble Bar by a telegraph line. There are in the town two hotels, stores, etc. A warden's and local court are held the second Monday of each alternate month. There is a 20-head stamper mill erected at Nullagine, a 10 head at Middle Creek, and 15 head at Mosquito Creek.

NUNNGARRA (Black Range), about 90 miles West of Lawlers, was declared a townsite in 1903. The district was opened up in September, 1902, when an alluvial rush occurred. A large quantity of alluvial gold was obtained, but the locality is now settling into a reefing centre. A State battery has been erected. Nunngarra, including the surrounding workings, has a population of 894. Buildings: W.A. Bank, three hotels, stores, etc.

NYNGHAN is a mining centre about 22 miles South of Field's Find. There is very little mining being done here just now. A number of pastoral leases are held in the district.

ONSLOW is the principal port of the Ashburton district. The anchorage is an open roadstead exposed to the prevailing winds, and vessels calling at this port discharge their cargo into lighters. A tidal jetty has been constructed, and a tramway connects it with the town. Amongst the Government buildings are a residency, post office, custom house, court-house, and a Government hospital. Onslow is a rendezvous of the vessels employed in the pearl shell fishing industry on this coast. There is a large quantity of wool, sandalwood, pearl shells, pearls, and tortoise-shell exported yearly from this port. White population, 51, in addition there are a few natives and Malays. There is a fortnightly inland mail service from Onslow, communicating with the Ashburton goldfield and all stations *en route*.

PADDINGTON, *see* Broad Arrow.

PARKERVILLE, about 19 miles from Perth, is a centre for wood cutting and gravel supplies, and the site of the Perth Municipal Quarry. About a mile from the railway line is the "League of Charity Home" for children, under the management of the Sisters of the Church. There is one licensed house near the Railway Station.

PEAK HILL, situated between the heads of the Gascoyne and Murchison Rivers, is 120 miles from Nannine by road *viâ* Abbott's. It has a bi-weekly mail, and communication is easy, as the water supply along the route is good. A telegraph line is constructed. In Peak Hill itself water is obtainable at a depth of about 250ft. The principal mines being worked here at present are on what is known as the "Patch." There is a 40-head battery connected by a tram line with the main shaft on the "Patch," and there are also cyanide works and a complete filter press plant erected. There is a Government 10-head battery about 1½ miles North of the town, where a well gives an ample supply of good water. Peak Hill has proved wonderfully rich. Another promising centre is called the *Horseshoe*, which lies 16

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miles to the North, and there are other outlying mines at *Mt. Fraser* and *Wilgeena;* also some promising mines at Ravelstone, where the Government battery is erected. Peak Hill boasts a branch of the Bank of Australasia, a court-house, post office, and police station. Population, 350. Peak Hill is also the centre of an increasingly large pastoral district, the telegraph office being largely availed of by drovers and others passing here with stock.

PERTH. For description *see* page 408.

PINGELLY is a small agricultural centre, situated by rail 130 miles from Perth and 210 miles from Albany. At the Eastward large areas of excellent land exist near Moorumbine and Wickepin, and on the Westward towards Staunton Springs and the Hotham River. Suitable land for settlement is still vacant in this district, where farming, fruit-growing, and stock-raising are successfully carried on by a large number of old and new selectors. Population, about 200. A vast amount of settlement has taken place recently, and, as a consequence, the town itself has advanced rapidly. Building operations have been going on to a great extent. Amongst other new structures may be noted a flour mill, which is now in full operation.

PINJARRA, 54 miles from Perth, situated on the Murray River, is the centre of an agricultural district of large area, about 50 by 60 miles. It is well watered by the river, and the district is capable of producing all kinds of cereals, vegetables, and fruits of both the temperate and tropical zone. The district has much good land, which is rapidly being taken up by an increasing population. The town is now well supplied with sawn timber from the neighbouring mills, an incentive to intending settlers, as hitherto building was very expensive. The climate is extremely healthy, and would support a large sanatorium, for which it is admirably adapted. Pinjarra is connected with the capital by railway, road, and telegraph. It has good hotel accommodation, and is a healthy and pretty resort, where fishing, shooting, and boating can be thoroughly enjoyed. Population, about 400. There are two hotels, and a Masonic Temple has been erected for the convenience of members. There is also an Anglican Church.

PINYALLING, situate five miles from Field's Find, is a mining centre which is receiving a good deal of attention at the present time from prospectors. A five-head battery has been recently erected and is giving satisfactory results. A small prospecting battery has also been purchased for erection in this district.

PORT HEDLAND, 100 miles from Marble Bar, has been declared a townsite. It is the only natural port for the Pilbara Goldfield, and most convenient for the shipment of live stock. The channel, which is six fathoms deep at low water, has been buoyed, a jetty constructed, and a causeway across the marsh completed. There is a post and telegraph office at the port, which latter further possesses three hotels, a branch of the Union Bank, a police station, and several stores. Steamers call regularly on their trips up and down the coast. Population, about 200.

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PRINCESS ROYAL, a busy and important mining centre, is situated about five miles North-East of Norseman. A township has not yet been proclaimed here, but a number of residence and business areas have been laid out for occupation. There are three hotels and several general stores, and the sanitary conditions of the place are looked after by a local board of health. A large number of miners find employment on the mines in this locality. There is a mail service twice a week from Norseman. Population, about 500.

QUELLINGTON is an old agricultural settlement in the York district. The chief buildings are a State school, agricultural hall, and post office. Population, about 300.

RAVENSTHORPE is the chief town and centre of the Phillips River Goldfield. It is situated on hilly ground, about 25 miles North of Hopetoun, the port for the goldfield. Its principal buildings consist of a Warden's court, a post and telegraph office, a school, and a Baptist church. About 12 miles South-East areas have been surveyed at *Coondip* (late "Harbour View"). The water in the vicinity is brackish or salt; there are two Government condensers on the field, one situated about 1½ miles East from Ravensthorpe, and the other at Coondip. Owing, however, to the rains during last winter, there has been a fair supply of water, and there has consequently been no necessity for using the Government condensers. The country from Ravensthorpe to Carlinup is fairly timbered, and there are good patches of agricultural country in the district. The field is principally dependent on its gold and copper resources, more especially copper, and efforts are now being made for the erection of smelting works, as at present the cartage, freight, forwarding, and smelting charges on ore sent to Wallaroo in South Australia amount to about £8 per ton. There is a weekly mail service from Albany by steamer, and coaches run between Ravensthorpe and Hopetoun twice a week. A hospital has been erected at Ravensthorpe, and there is a resident medical officer. Population, 630. At *Hopetoun*, the port for the field, there is a post and telegraph office. During the year 1903 the Government appointed an ore buyer, and up to the 31st December of that year about 2,335 tons of copper ore were purchased, of an estimated value of £16,717. A small quantity of alluvial gold has been found at Coondip; also a lode containing payable silver.

ROCKINGHAM, which is situated about 17 miles South of Fremantle, is the shipping port for the Jarrahdale Timber Company. It is connected by telegraph and road with Fremantle, and has a public school, a church, and an hotel.

ROEBOURNE, the chief town of the North-West District, is a municipality governed by a mayor and five councillors, and is the seat of the Government Resident, also the centre of trade for the pastoral district surrounding it, and the principal distributing centre for the West Pilbara Goldfield. The town is situated at the foot of Mt. Welcome, near the Harding River, and is well laid out with wide streets and substantial public buildings, including post office,

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hospital, court-house, gaol, and Government residency. Population, about 300, including coloured people. The hotel accommodation is good, and the town has the convenience of a branch of the Union Bank.

ROTHESAY is a mining centre in the Yalgoo Goldfield, about 35 miles South-West of Field's Find. There is a splendid mining plant erected here, but it has been idle for a considerable period. Some of the properties have been re-taken up recently, and there is a probability that the machinery may once again be set in motion. The surrounding country is mostly held under pastoral leases.

ROTTNEST is an island situated about 12 miles West by North half North from Fremantle, and contains the summer residence of His Excellency the Governor. It is about seven miles in length by about two miles in breadth. For the past 62 years this island has been a native prison; it was, in fact, so constituted by an Act of Council in the time of the late Governor Hutt, 26th November, 1841. The Government recently constituted it a prison under the jurisdiction of the Comptroller General of Prisons, but still more recently a portion only of the island was set apart to be a penal outstation, the remainder to be no longer used for penal purposes. The outstation will be a branch of the Fremantle Prison, from which a certain number of the better-behaved men will be transferred and employed in quarrying stone for public buildings, in road making, and other work necessary for the improvement and ornamentation of the island. It will, however, still also serve for the incarceration of aboriginal native offenders from the South-Western portion of the State. Within the island there is a chain of salt lakes, the water from which is popularly supposed to possess certain medical and curative properties, especially for rheumatism. As the breaking up of the Rottnest Native Prison establishment has been imminent ever since May, 1902, there has been no farming or gardening industry carried on on behalf of the Government since that time. For the same reason, and because the number of men could not be spared for the industry, the manufacture of salt was also discontinued about the same time. The latter industry is well worth cultivating, as with the present appliances, all of a crude nature, and if the fires were kept burning night and day, from 600 tons upwards, of 98·8 per cent. pure salt could be turned out in the year; with up to date plant this output could of course be largely increased. It is proposed to revive the industry in the near future. There is good fishing all round the island, and during the summer months the salt lakes are visited by large flocks of snipe, which are strictly preserved for His Excellency the Governor and the Ministers of the Crown. The pilot station was about a year ago removed from Rottnest, and the service is now conducted solely and directly from Fremantle. The principal lighthouse is situated upon the highest hill about the centre of the island. It is a revolving dioptric of the first order, at an elevation of about 300 feet above high water mark, visible 23 miles or thereabouts. A

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subsidiary light has been erected at the North of the island. This is a fixed light of smaller power, visible 15 miles.

SEABROOK is a farming centre four miles East of Northam, on the Yilgarn railway. A battery of 80-head of stampers, with cyanide plant, was erected here about six years ago for the treatment of stone from the goldfields, as there was then a great scarcity of water there. But the abundance of water for battery purposes since obtainable on the fields rendered the Seabrook battery idle, and it has now been dismantled and sent to different mining centres. There is no township, but the country is closely settled, and a Government school has been provided for the convenience of the population in the neighbourhood.

SERPENTINE.—This place is the centre of an agricultural district, but sparsely populated, being chiefly known for its pretty falls at the head of the Serpentine River, in the Darling Range, about a mile and a-half from the station. The falls are much frequented by visitors. An hotel is being erected close to the station.

SIR SAMUEL, 32 miles North of Lawlers, in the East Murchison Goldfield, was declared a townsite in 1897. There are two hotels, a miners' institute, stores, etc., in the town. Population, 360. Nine miles to the North is the townsite of *Kathleen*, with two hotels and two stores, and a population of 170.

SOUTHERN CROSS, the oldest mining town in Western Australia, is the principal centre of the Yilgarn Goldfield, and contains, with the surrounding mining district, a population of about 1,600. The public buildings are the court-house, with Warden's quarters, and post office, miners' institute with hall, three churches, public hospital, State school, police quarters, gaol, and municipal chambers. There are five hotels in the town. Southern Cross was for some time the terminus of the railway from Perth to the Eastern Goldfields, but is now a half-way house between the capital and the more important fields. The railway communication between Southern Cross and Perth consists of one express train and one ordinary passenger train each way daily. There are two gold mining companies working in the immediate vicinity of the town, viz., "Fraser's" and "Fraser's South Extended," besides several smaller properties, and a good 10-head battery, with cyanide vats, has been erected to encourage the latter. Other mining centres in the Yilgarn Goldfield, at which mining operations are now being carried on, are:—Greenmount, five miles to the S.W.; Parker's Range, 40 miles S.; Jacoletti, 30 miles S.; Hope's Hill, four miles N.; and Mt. Jackson, 104 miles N. The mines at Mt. Jackson are held by one company, who are working energetically with a 10-head battery and cyanide vats. In addition to these centres, two quite new finds have been made between Parker's Range and Southern Cross, which it may be confidently expected will continue to give good returns. The water supply for the town of Southern Cross is now mainly derived from the Coolgardie Water Scheme, and in the

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early future will be almost entirely so. The district, as regards health, will compare favourably with any other mining town.

SOUTH PERTH is a very popular suburb, and building has been going on apace lately. The district is increasing rapidly in importance. The population of the South Perth Municipality on the 20th May, 1903, was 947. A number of new houses are being erected in various parts, especially towards the Mill Point end of the suburb. In the vicinity of Coode Street a new wharf is about to be constructed at a cost of £1,600. This will open up this portion of the district. Since the opening of the charming Zoological Gardens, which necessitated the deepening of the river channel to provide an easier means of access for the ferry service to and from the city, South Perth has grown, and is still growing, rapidly in popularity. As a holiday resort also the suburb is very popular; over 100,000 persons were carried on the ferry steamers to the district during the past year, 72,000 of whom visited the Zoo.

STATION PEAK, which has a population of about 60, is situate 70 miles from Roebourne, and is called after the Station Peak Gold Mine, discovered by Messrs. Bull Bros. There are 20-head of stampers on this, and the gold return for the past year was over 5,000ozs., the average yield being over an ounce to the ton.

SUBIACO.—The town of Subiaco adjoins the Western boundary of the City of Perth. The lands of the municipality extend along the North-Western boundary of the King's Park for a distance of two miles. Ornamental public gardens are established, also a municipal bowling green, croquet lawn, and cricket ground. An electric tramway traverses two of the principal streets for a distance of one and a-half miles A municipal electric light plant has been established by the Council, and seven and a-half miles of streets are lit up by 110 electric lamps. Subiaco has 1,400 dwellings, and churches of the following denominations:—Church of England, Wesleyan, Presbyterian, Church of Christ, Roman Catholic, and Baptist. The following public buildings are established:—Council Chambers, post office, railway station, public school, "Home of Peace," Boys' and Girls' Industrial School, and police station. The capital value of the municipality is £650,000, the annual value £41,000. Its indebtedness is £17,000. Population, 5,304.

TAMMIN is an agricultural centre on the Yilgarn railway, East of Northam. It has a Government school.

TOODYAY, *see* Newcastle.

TUCKANARRA is a township situated at the side of the railway, about 25 miles North of Cue. There are: a railway station, two hotels, and two stores. A few mines are being worked; a State battery has been provided, but it has not been doing much of late. The population of the town and neighbourhood is estimated to be 98 men and 37 women.

VICTORIA PARK.—This is a rapidly growing suburb situated on the East side of the Swan River, and within two miles of the

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General Post Office. The town had, in 1903, a population of 1,400, of whom 723 were males. The main roads to Bunbury, Albany, Guildford, and South Perth, and the South-Western Railway pass through the boundaries of the Municipality. Victoria Park has a post, telegraph, and money order office, and savings bank, a town hall, police station, and four churches. Communication with Perth is obtained by rail either from the Victoria Park or Burswood stations, or by 'bus connecting with the City electric trams.

WADGINGARRA, a mining centre about 12 miles Easterly from Yalgoo, was at one time a very promising district, and small parcels of ore gave very good returns, both by battery treatment and smelting. Recently, however, the mines have only been worked in a very spasmodic manner.

WAGIN, on the Great Southern Railway, situate by rail about 147 miles from Albany and 193 miles from Perth, has made rapid strides of late. A large quantity of land in this important district is now occupied for agricultural purposes, both East and West of the Great Southern railway line. In the vicinity large areas of rich land are to be found. The Arthur River, with its tributaries, provides a permanent water supply. Valuable improvements are being made by the settlers in the district. Population of district, 1,156.

WAIGERUP is a townsite situate 37 miles from Bunbury, on the South-Western railway line. It has a railway station, a Government school, and an agricultural hall for the use of the population in the neighbourhood, but no business places.

WALLABERI, *see* Derby.

WAROONA.—This place, which is contiguous to Drakesbrook, is the station for both places. A great deal of settlement has taken place in the district, much of the best land having been taken up. The saw mills, which furnished a considerable proportion of the population, having been recently removed, the progress of the place has been somewhat retarded. There are two churches—Anglican and Roman Catholic—a State school, a public library, a police station, etc.

WARRAWOONA is situated 18 miles South of Marble Bar, in the Salgash Range. It has a weekly mail service and telephone service to Marble Bar. It is an important quartz mining centre. Some of the mines have turned out very rich crushings, notably the *Gauntlet*, the *Klondyke*, and *Klondyke Boulder*. There are two batteries, employing 20 stamps. The town has one hotel and a store.

WATERLOO is a village situated seven miles from Bunbury, on the Perth-Bunbury railway. It has a railway station, goods shed, agricultural hall, and a Government school for the use of the children of the surrounding settlers. The population is about 30 within a radius of one mile.

WATEROUS is an isolated sawmill, belonging to Millar Brothers, reached on their tram system from Yarloop, on the South-Western Railway. It is about 10 miles from the latter place,

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prettily situated in the Darling range, on a running stream. There is a Government school, which is well attended, and there are Anglican church services regularly conducted in the school every month. Population, about 300.

WHIM CREEK, situated about 53 miles East from Roebourne, is a mining centre. From the Whim Well Copper Mine something like 2,000 tons of copper ore have been shipped to South Australia and Cardiff for treatment, yielding a very substantial profit. Within four miles from Whim Creek is situated the Mons Cupri Copper Mine. Smelters have lately been erected on this mine. There are two hotels here. Population, about 50.

WILLIAMS RIVER is a small township on the old Perth-Albany road. It is 100 miles from Perth and 19 from Narrogin, on the Great Southern Railway. It has a school, a post and money order office, a court-house, and a police station. The town is surrounded by thousands of acres of good agricultural and pastoral land, much of which is, unfortunately, held by absentees. Population, about 100. Other small adjacent centres are *Marradong*, *Wandering*, and *Quindanning*. A flour mill has recently been erected.

WILUNA (Lake Way), situated 120 miles North of Lawlers, was proclaimed a township in 1897. It is the centre of a rich auriferous belt. Public buildings:—Post office, miners' institute, Government school, Union Bank, and hospital. There are three hotels, general stores, shops, etc., in the town. Population, 285.

WONGAMINE is a farming settlement, situate about 12 miles North-East of Newcastle. It has its agricultural hall and public school. The soil in this neighbourhood is first-class, with a fair rainfall, and is in every way adapted to the growth of cereals and stock-raising.

WOODARRA (Lake Darlôt) is 50 miles East of Lawlers. It was declared a townsite in 1898. It has two hotels and two stores. A Government public battery of ten stamps has been erected about three miles from the town. Population 116.

WORSLEY SIDING is about half way between Brunswick Junction and Collie. There is a population of about 500, employed at three timber mills owned by Millar's Karri and Jarrah Timber Company. The place possesses a post office and a public hall, but most of the buildings are only of a temporary nature,

WYNDHAM, East longitude 128° 5′, South latitude 15° 27′, is situated on the East shore of Cambridge Gulf, 45 miles South from its entrance to the Indian Ocean. It is the business centre of the whole East Kimberley district, the North-East terminus of the Western Australian system of telegraphs, and is connected with Fremantle and the intermediate coastal ports by one of the Adelaide s.s. Company's steamers, running once in every eight weeks, and with Fremantle direct once a month, from March to December, by a locally-chartered line of cattle-boats. It is also connected by

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Wyndham, (Cambridge Gulf.

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steamer with Port Darwin. The arrangements for shipping cattle are very complete. The public buildings consist of a magistrate's residence, hospital, gaol and gaoler's quarters, post and telegraph office, police quarters and station, goods shed and bond, and a mechanics' institute with a good library. There are two small settlements three and six miles from Wyndham, consisting of a public house, blacksmith's shop, saddler's shop, and a slaughter yard, and also possessing a Government well. The population of Wyndham itself, exclusive of aboriginal prisoners, is not more than 40. With the 3-mile and 6-mile, it would be about 70. There are slightly over 100 aboriginal prisoners at present in the gaol.

YALGOO is the principal town on the goldfield of that name. It is situated on the Geraldton to Cue railway, about 139 miles from the former and 123 from the latter. It is the business centre of an extensive mining and pastoral district. A large number of sheep and cattle are trucked from here, principally for Perth and the Eastern Goldfields. The latest returns of stock show that there were within the boundaries of the goldfield about 144,000 sheep, 4,795 cattle, and 1,389 horses. There are daily mails between Perth and Cue, as well as a weekly mail to Field's Find, bi-weekly to Gullewa, and fortnightly to the Upper Murchison. Gullewa and Murgoo Station are also connected with Yalgoo by telephone. The public buildings consist of a railway station and refreshment rooms, warden's office and court-house, school, police station, post and telegraph office, and a large miners' institute, also a hospital, which has been in disuse for a lengthened period. There are five hotels, four general stores, and a blacksmith's and wheelwright's shop. In the immediate vicinity of Yalgoo, mining has been very dull for the past year. The principal mine (the Emerald Reward Consolidated) has been worked in a very intermittent manner. Various parties of tributers have tried, but none of them seemed to have sufficient capital to enable them to do the developmental work necessary before reaching payable ore. The outlying mining centres, viz., Field's Find, Gullewa, Melville, Nynghan, Rothesay, Wadgingarra, Yuin, and Carlaminda, have each contributed more or less to the total gold output for the year 1903, viz., 4,168·74ozs. A large quantity of sandalwood was obtained both here and at Wurarga during the same year. Good water is obtainable throughout the district at depths varying from 16 feet to 30 feet. Local and Warden's Courts are held on the 2nd Thursday of each month, at which the business from the whole goldfield is dealt with. The population of the Yalgoo police patrol district is 402, that of the goldfield 689, and of the town of Yalgoo 160.

YARLOOP is a timber station situated on the South-Western line, 36 miles from Bunbury. It is at present closed down. Public buildings: Railway station, police station, post and telegraph office. Private buildings (the property of the company): A hospital, also a hall and library for use of employees. In addition there are an hotel and two stores. The Karri and Jarrah Forests Co. have

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their repairing shops at this station, and the population has now increased to about 450.

YATHEROO is a rural settlement about 30 miles West from Moora, on the Midland Railway. The place is well known for its fine stock-raising capabilities, whilst its butter never fails to command a high price. It is also noted for its adaptability to fruit and cereal growing. The roads in the neighbourhood are excellent. The soil and the rainfall are all that could be desired. Population, about 300.

YERILLA, *see* Menzies.

YORK, one of the oldest and most important agricultural centres of the State, is situated on the Avon River, about 60 miles East from Perth, and the Perth to Albany railway passes through the town. The district includes the Dale and Mackie Rivers' basins, and part of the Avon, their valleys being very fertile, the soil being specially adapted for the growth of cereals, potatoes, vines, and fruit trees. Oranges do well in many parts of the district. The high price realised for hay and cereals, owing to the demand from the goldfields, has proved an incentive to the people of the district, and large tracts of land are being rapidly brought under cultivation. The town is one of the most picturesque in Western Australia, and is particularly healthy. Population about 1,350. Branches of the Western Australian Bank and the Union Bank carry on business. A line of railway, 14 miles long, connects York with Greenhills, where also there is good agricultural land and a considerable amount of settlement. York contains a very fine court-house, post office, hospital, municipal council chambers, two fine roller flour-mills, a bacon-curing establishment, a large tannery, several hotels, and numerous mercantile institutions. Three large bridges and a suspension foot-bridge span the River Avon within the municipality.

YUIN, about 60 miles North-West of Yalgoo, is a thriving little mining centre, and though there is only one mine being worked, the returns from it have been very regular. There is a five-head battery and a cyanide plant on it. Yuin has one hotel, a store, a butcher's shop, and a boarding-house, beside several private camps. The country in the vicinity is held under pastoral lease.

YUNDAMINDERA (The Granites) is a mining town 40 miles North-East of Kookynie, and is the centre of a rapidly-improving district. It has three hotels, a post and telegraph office, and a branch of the W.A. Bank. There is one battery (20 head of stamps), which is supplied with water from the mine, and also a Huntington mill erected by the State. Water for domestic purposes is obtained from fresh water wells in the neighbourhood. Population, 270.

YUNNDAGA, until recently known as *Woolgar*, is a thriving township, about four miles South-West of Menzies. The principal mine is the Menzies Consolidated, on which is erected a 20-head mill. Prospecting operations in the vicinity are active. Population, 231.

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PART VI.—FINANCE.

1.—PUBLIC FINANCE.

The various financial transactions of the Government may be classified under three heads, according as they are connected with :—

I. The Consolidated Revenue Fund.

II. The General Loan Fund, or

III. The Trust Fund.

The Balances of these Funds on the 30th June, 1904, and the manner in which these balances were held, may be seen from the following statement :—

Dr.	£
To Consolidated Revenue Fund ..	83,364
Trust Fund	3,849,848
Drafts *in transitu*	78,977
	£4,012,189

Cr.	£
By Advances, General Loan Fund ..	142,558
Other Advances	32,597
Investments	3,076,549
Stores on hand	307,300
Remittances *in transitu*	225,439
Cash	227,746
	£4,012,189

I. CONSOLIDATED REVENUE FUND.

In "The Audit Act, 1881," it was provided that "the Treasurer shall, within one month after the 31st of December in each year, prepare a full and particular statement in detail of the receipt and expenditure of the several branches of public Revenue for such year, which statement shall include such amounts only as shall have been actually received and paid by the Treasurer within the year or within seven days thereafter."

This provision was somewhat modified by "The Audit Act, 1891," which repealed "The Audit Act, 1881," and provided in Section 38 that "the Colonial Treasurer shall, not later than three months after the end of every financial year, prepare a full and particular statement in detail of the Expenditure of the Revenue for such year . . . and also of the receipt of the said Revenue for the same year."

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It will be noticed that the term within which the financial statement must be made was, by this Act, extended from one month to three, and that the expression "financial year" is introduced, thereby implying the intention of the Legislature to allow the Colonial Treasurer to close his accounts at some date other than the 31st December. This latter was taken advantage of in 1892, when the Colonial Treasurer, on the 21st December in that year, asked Parliament to consider the Estimates of Revenue and Expenditure for the six months ending 30th June, 1893. Since then the financial year has closed on the 30th o June in each year. The financial year of each of the six States of the Commonwealth, as well as that of the Federal Government itself, closes on 30th June, while in New Zealand the year runs to 31st March. It may be mentioned that, up to the end of the year 1903, the Tasmanian financial year closed on 31st December.

The provision made in "The Audit Act, 1881," that the Annual Financial Statement should include such amounts only as had been received or paid by the Treasurer within the year, or within seven days thereafter, was slightly altered by "The Audit Act, 1891," in Section 21 of which it is provided that "all moneys voted in any year in respect of such annual estimates shall be charged with the accounts that come in course of payment during the year, or be presented for payment by the proper officer at the Treasury within ten days from the close of the financial year, and the payment of all such accounts shall be deemed to have been made within the financial year."

"The Audit Act, 1891," was repealed by "The Audit Act, 1904," which was assented to on 16th January, and came into operation on 15th February, 1904. Under this Act, however, the provisions for a financial year, for the continuation of the "cash basis" system of accounts, and for ten days' extension of time in closing the accounts for the year, were retained.

Commonwealth Revenue and Expenditure.

As the inauguration of the Commonwealth of Australia has, to a considerable extent, affected the Consolidated Revenue Fund by removing the collection and disbursement of a large proportion of the Revenue from the State to the Federal Government, it will be well at this stage to briefly consider the provisions regulating the financial transactions between the States and the Commonwealth.

Under "The Commonwealth of Australia Constitution Act, 1900," the control of the Customs and Excise Department automatically passed from the State to the Federal Government on the date of the inauguration of the Commonwealth, viz., 1st January, 1901, while under a Proclamation made in accordance with the Act, the Departments of Posts, Telegraphs, and Telephones, and of Defence, were similarly transferred on 1st March, 1901.

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The Act provides that until the expiration of five years from the date of the imposition of uniform duties of Customs, each State shall be credited with the revenues collected therein by the Commonwealth, and shall be debited with the expenditure incurred for the upkeep of its transferred departments, and with its proportion of the expenditure of the Commonwealth other than that connected with the transferred departments, such proportion being computed on a population basis. The balance in favour of each State is required to be paid over by the Commonwealth, month by month.

In the case of articles imported from beyond the Commonwealth passing for consumption into a State other than that into which they were originally imported, the duty is credited to the consuming State; and similarly the excise paid on goods produced or manufactured in one State and passing into another for consumption is credited to the consuming State.

The Act also provides that on the imposition by the Commonwealth of uniform duties of Customs, trade and commerce shall be absolutely free among the States of the Commonwealth with the exception of Western Australia, which, for a period of five years following the imposition of uniform duties, is permitted to impose duties on interstate imports, such duties diminishing in each of the five years by one-fifth of the amount chargeable in the first of those years.

Uniform duties of Customs were imposed by the Commonwealth on the 9th October, 1901, so that the provisions made in the Act for the "book-keeping" method described above, of regulating the financial transactions between the State and the Commonwealth, will expire on the 9th October, 1906, as will also the Western Australian sliding scale of Customs duties on interstate imports.

The following table furnishes a statement of the Revenue and Expenditure of the Commonwealth in respect of Western Australia for the year ended 30th June, 1903:—

Revenue for Year ended 30th June, 1903.	£	Expenditure for Year ended 30th June, 1903.	£
Balance from 30th June, 1902	942	Department of Trade and Customs	34,740
Customs	1,317,770	Department of Defence	32,471
Excise	78,232	Postmaster General's Department	280,304
Post Office, Telegraph, and Telephone	225,244	Proportion of New Expenditure	17,524
Proportion of New Revenue	261	Surplus Revenue returned to State	1,255,731
Defence	324	Surplus Revenue due to State, 30th June, 1903	2,134
Miscellaneous	131		
	£1,622,904		£1,622,904

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Similar particulars for the year ended 30th June, 1904, are as follows:—

Revenue for Year ended 30th June, 1904.	£	Expenditure for Year ended 30th June, 1904.	£
Balance from 30th June, 1903	2,134	Department of Trade and Customs	36,494
Customs	1,154,854	Department of Defence ..	60,704
Excise	107,155	Postmaster General's Department	305,904
Post Office, Telegraph, and Telephone	230,858	Proportion of New Expenditure	26,559
Proportion of New Revenue	295	Surplus Revenue returned to State	1,065,244
Defence	61	Surplus Revenue due to State on 30th June, 1904	925
Miscellaneous	473		
	£1,495,830		£1,495,830

The amounts appearing in the foregoing tables under the head of "Proportion of New Expenditure," are those debited to Western Australia on a population basis, on account of the expenditure of the Commonwealth on the salaries of the Governor General, the Commonwealth Ministers, the Senators, and the Members of the House of Representatives; Parliamentary reporting and printing; Elections; Rents and Repairs; Sugar Bounty; the Administration of New Guinea; and other miscellaneous items not coming under the head of "Expenditure in connection with transferred Departments."

The amounts credited to the State under the head of "Proportion of New Revenue" are the sums allotted on a population basis in respect of repayments of moneys charged or to be charged as New Expenditure.

State Revenue.

The principal sources of State Revenue during the year ended 30th June, 1904, and the amount derived from each are as follows:—

Sources of Revenue.	State Revenue for Year ended 30th June, 1904. Amount.	Percentage on total Revenue.	Per Head of Mean Population.
	£	%	£ s. d.
Taxation	235,114	6.62	1 0 7
Land	176,238	4.96	0 15 5
Mining	121,262	3.42	0 10 7
Railways and Tramways	1,612,608	45.43	7 1 1
Water Supply	78,259	2.20	0 6 10
Harbour	64,047	1.80	0 5 7
Surplus Commonwealth Revenue returned to the State	1,065,244	30.01	4 13 3
Other Sources	197,244	5.56	0 17 3
Total	3,550,016	100.00	15 10 7

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TAXATION.

Owing to the collection of the Customs and Excise duties being now entirely in the hands of the Commonwealth Government, the amount of State-collected taxation has been reduced to very small proportions. The taxes which contributed to the total of £235,114 shown in the above table are four in number, viz., Dividend Duty, Stamp Duty, Probate Duty, and License Fees the first three being what are usually termed direct taxes, and the last an indirect tax.

For the purpose, however, of ascertaining the amount of taxation per head imposed on the people of the State, it will be necessary to take into account the Commonwealth taxation, as has been done in the annexed statement :—

Particulars.	Taxation levied in Western Australia during the Year 1903-4.	
	Amount.	Per Head of Mean Population.
	£	£ s. d.
Collected by the Commonwealth—		
Customs	1,154,854	5 1 0
Excise	107,155	0 9 5
Collected by the State—		
Dividend Duty	125,071	0 10 11
License Fees	32,516	0 2 10
Probate Duty	21,759	0 1 11
Stamp Duty	55,768	0 4 11
Total Taxation	1,497,123	6 11 0

The following table furnishes particulars of the total amount raised by means of taxation in each of the financial years from 1894-5 to 1903-4, and also in each case the amount per head of mean population :—

Year.	Taxation.			Amount per Head of Mean Population.		
	Customs and Excise.	Other Taxation.	Total.	Customs and Excise.	Other Taxation.	Total.
	£	£	£	£ s. d.	£ s. d.	£ s. d.
1894-5	513,508	34,645	548,153	6 4 8	0 8 5	6 13 1
1895-6	780,901	74,359	855,260	7 9 4	0 14 2	8 3 6
1896-7	1,087,257	101,958	1,189,215	7 14 8	0 14 6	8 9 2
1897-8	1,017,724	104,283	1,122,007	6 4 1	0 12 9	6 16 10
1898-9	867,520	65,447	932,967	5 2 8	0 7 9	5 10 5
1899-1900	933,717	121,920	1,055,637	5 8 5	0 14 2	6 2 7
1900-1901	992,216	144,103	1,136,319	5 9 2	0 15 10	6 5 0
1901-1902	1,335,614	173,582	1,509,196	6 16 0	0 17 8	7 13 8
1902-1903	1,396,002	221,247	1,617,249	6 10 3	1 0 8	7 10 11
1903-1904	1,262,009	235,114	1,497,123	5 10 5	1 0 7	6 11 0

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In this table the amounts given for Customs and Excise for the year 1900-1 were collected by the State up to 31st December, 1900, and by the Commonwealth from 1st January to 30th June, 1901, while the whole of the Customs and Excise duties for 1901-2 and subsequent years were collected by the Commonwealth.

Prior to 1896, only three forms of taxation were in force in this State, viz.,—Customs duties, Stamp duties, and License fees. In that year Probate duties were added to the list, followed by an Excise duty on beer in 1898, and the Company duty, in 1899, this latter being altered to a Dividend duty in 1902. On the imposition by the Commonwealth of uniform duties of Customs and Excise, the number of commodities subject to Excise duty in this State was increased, and now includes Spirits, Beer, Tobacco, Sugar, and Starch.

It will be seen that during the early portion of the ten years under review, the Revenue from taxation increased so rapidly both in actual amount and also per head, that in the financial year 1896-7 there was collected no less a sum than £1,189,215, or £8 9s. 2d. per head of mean population. For the two following years a declining Revenue was experienced, only £932,967, or £5 10s. 5d. per head of mean population, being obtained from this source in 1898-9. In the year 1899-1900, however, an upward movement again commenced, and continued in evidence until 1902-3, the total for which year reached £1,617,249, the largest amount of Revenue ever derived from taxation in this State in any single year. In 1903-4 a fall was again experienced, the total for that year reaching only £1,497,104, or £6 11s. per head. The amount per head of mean population attained its highest point in 1896-7, when it reached £8 9s. 2d., being 15s. 6d. above the amount for 1901-2, and £1 18s. 2d. above that for 1903-4. The abnormal increases in 1901-2 and 1902-3 were mainly due to the imposition by the Commonwealth of uniform duties of Customs and Excise under the tariff which came into force in October, 1901, operating in conjunction with the special Western Australian tariff on interstate importations previously referred to, while the decline in the year 1903-4 was to some extent brought about by the operations of the sliding scale tariff on interstate importations. The amount received from taxation other than Customs and Excise has continuously increased during the past five years, the total for 1903-4 being £235,114—the highest on record. The amount per head for that year was practically the same as that for the preceding year, the respective amounts being £1 0s.7d. and £1 0s. 8d.

Land Revenue.

The amount of Revenue collected by the Lands Department, during each of the five financial years 1899-1900 to 1903-4, is given

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in the following table, the heads used being those adopted by the Department in the classification of its Revenue :—

Heads of Revenue.	Year ended 30th June, 1900.	Year ended 30th June, 1901.	Year ended 30th June, 1902.	Year ended 30th June 1903.	Year ended 30th June, 1904.
LAND—	£	£	£	£	£
Sales	38,574	51,564	36,785	28,308	25,362
Rent	74,912	81,675	85,946	98,782	120,288
Timber Dues	11,064	18,006	16,992	21,444	20,152
Guano	899	713	934	431	756
Fees	3,154	3,559	4,130	5,092	8,364
All other sources ..	923	1,143	951	2,512	1,316
Total	129,526	156,660	145,738	156,659	176,238

MINING REVENUE.

The various sources from which the Revenue of the Mines Department has been derived, and the amounts obtained from each, during the five financial years, 1899-1900 to 1903-4, are as follows :—

Heads of Revenue.	Year ended 30th June, 1900.	Year ended 30th June, 1901.	Year ended 30th June, 1902.	Year ended 30th June, 1903.	Year ended 30th June, 1904.
MINING.	£	£	£	£	£
Lease Rental under Mineral Lands Act	2,758	3,050	2,436	1,968	1,919
Receipts from all other sources under Mineral Lands Act	3,484	2,900	3,534	2,915	2,824
Lease Rental under Goldfields Act	42,875	37,588	37,432	31,899	29,923
Receipts from all other sources under Goldfields Act	14,235	11,671	10,218	10,206	8,421
Receipts from Public Batteries	19,468	19,809	43,785	54,195	56,679
Fees under Boilers Inspection Act	2,378	2,578	2,687	3,293	3,344
Survey Fees	14,085	10,656	8,264	7,696	8,248
Examination Fees	821	699	576	431	290
Exemption Fees	6,344	5,475	4,434	3,443	3,851
Explosives and Analytical ..	1,116	857	1,797	2,406	4,707
Geological and Assay ..	143	48	43	146	117
Receipts from all other sources	141	206	278	544	939
Total	107,848	95,537	115,484	119,142	121,262

REVENUE FOR TEN YEARS.

In the following summary is given the amount derived from each of the principal sources of revenue for each of the ten years,

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1894-5 to 1903-4, revenue collected by the Commonwealth being included for comparative purposes in the figures shown for 1900-1 and subsequent years :—

Year.	Taxation.			Land.	Mining.	Public Works.			Post, Telegraph, and Telephone.	Other Sources.	Total.
	Customs and Excise.	Other Taxation.	Total.			Railways & Tramways.	Water Supply.	Total.			
	£	£	£	£	£	£	£	£	£	£	£
1894-5	513,508	34,645	548,153	89,841	51,050	295,733	13,454	309,187	80,756	46,954	1,125,941
1895-6	780,901	74,359	855,260	151,574	135,168	474,635	30,000	504,635	152,320	59,738	1,858,695
1896-7	1,087,257	101,958	1,189,215	185,126	212,407	939,146	21,456	960,602	208,340	87,061	2,842,751
1897-8	1,017,724	104,283	1,122,007	168,972	87,650	1,035,199	16,821	1,052,020	220,912	103,186	2,754,747
1898-9	867,520	65,447	932,967	142,720	74,014	1,020,937	11,999	1,032,936	197,171	99,003	2,478,811
1899-1900	933,717	121,920	1,055,637	129,520	107,848	1,258,945	11,739	1,270,684	208,109	103,592	2,875,396
1900-1901	992,196	144,103	1,136,299	156,660	95,537	1,347,089	16,229	1,363,318	212,692	116,074	3,080,580
1901-1902	1,335,614	173,582	1,509,196	145,738	115,484	1,488,574	15,034	1,503,608	225,752	190,807	3,690,585
1902-1903	1,396,002	221,247	1,617,249	156,659	119,142	1,598,023	30,048	1,628,071	225,244	250,104	3,996,469
1903-1904	1,262,009	235,114	1,497,123	176,238	121,262	1,612,608	78,259	1,690,867	230,858	262,120	3,978,468

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State Expenditure.

The principal items of Expenditure from Consolidated Revenue during the year ended 30th June, 1904, are as follows :—

Heads of Expenditure.	State Expenditure for Year ended 30th June, 1904. Amount.	Percentage on Total Expenditure.	Per Head of Mean Population.		
	£	%	£	s.	d.
Railways and Tramways	1,228,235	33.21	5	7	6
Public Works	377,677	10.21	1	13	0
Public Buildings	140,432	3.80	0	12	3
Public Debt—					
Interest	537,965	14.55	2	7	1
Sinking Fund	176,669	4.78	0	15	6
Education	134,337	3.63	0	11	9
Police	126,997	3.43	0	11	1
Medical	90,619	2.45	0	7	11
Charities	32,736	0.89	0	2	10
Gaols	29,227	0.79	0	2	7
Lands and Surveys	114,084	3.08	0	10	0
Mines	189,280	5.12	0	16	7
Other Expenditure	520,054	14.06	2	5	6
Total	3,698,312	100.00	16	3	7

For the purpose of instituting comparisons with the Expenditure of previous years, it will be necessary to include, for 1900-1 and subsequent years, the Expenditure by the Commonwealth in respect of Western Australia, as has been done in the following table, which gives, for each of the ten years, 1894-5 to 1903-4, details for some of the principal heads of Expenditure :—

Year.	Railways and Tramways.	Other Public Works.	Public Debt—Interest and Sinking Funds.	Post, Telegraph, and Telephone.	Other Expenditure.	Total.
	£	£	£	£	£	£
1894-5	183,941	145,287	154,723	86,800	365,978	936,729
1895-6	266,868	638,502	194,623	170,325	553,545	1,823,863
1896-7	580,147	805,480	251,172	313,203	889,451	2,839,453
1897-8	852,648	847,240	338,263	289,475	929,286	3,256,912
1898-9	749,129	325,895	426,760	237,262	800,312	2,539,358
1899-1900	884,861	219,465	439,825	239,309	832,215	2,615,675
1900-1901	1,071,576	324,123	486,800	255,708	1,025,940	3,164,147
1901-1902	1,269,619	273,522	602,138	258,570	1,087,167	3,491,016
1902-1903	1,275,565	428,051	692,092	280,304	1,210,190	3,886,802
1903-1904	1,228,235	518,109	714,634	305,904	1,361,091	4,127,973

Revenue and Expenditure of Western Australia.

Including, for the purposes of comparison, in the figures for 1900-1 and subsequent years, the Revenue collected in Western Australia by the Commonwealth Government, and the Expenditure by

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that Government in respect of Western Australia, the following table shows the total Revenue and Expenditure and the corresponding amounts per head of mean population, for each of the years specified since the earliest years of Western Australian settlement :—

Year.	Revenue.				Expenditure.			
	Amount.	Per Head of Mean Population.			Amount.	Per Head of Mean Population.		
	£	£	s.	d.	£	£	s.	d.
1830	17,485	9	17	11	17,485	9	17	11
1840	16,827	7	5	7	15,098	6	10	8
1850	19,138	3	5	0	16,657	2	16	7
1860	69,863	4	12	11	61,745	4	2	2
1870	98,132	4	1	9	113,046	4	14	2
1880	180,049	6	4	10	204,337	7	1	8
1890	414,314	9	4	2	401,737	8	18	7
1894–5	1,125,941	13	13	4	936,729	11	7	5
1895–6	1,858,695	17	15	5	1,823,863	17	8	9
1896–7	2,842,751	20	4	5	2,839,453	20	3	11
1897–8	2,754,747	16	15	10	3,256,912	19	17	1
1898–9	2,478,811	14	13	5	2,539,358	15	0	7
1899–1900	2,875,396	16	13	11	2,615,675	15	3	9
1900–1	3,080,580	16	18	11	3,164,147	17	8	1
1901–2	3,690,585	18	15	10	3,491,016	17	15	6
1902–3	3,996,469	18	12	11	3,886,802	18	2	9
1903–4	3,978,468	17	8	1	4,127,973	18	1	2

Revenue and Expenditure of Commonwealth States.

Particulars relative to the Revenue and Expenditure of the several States of the Commonwealth, for the year ended 30th June, 1904, are as follows :—

State.	State Revenue.			State Expenditure.
	Collected by the State.	Surplus Commonwealth Revenue returned to State.	Total.	
	£	£	£	£
Western Australia ..	2,484,772	1,065,244	3,550,016	3,698,312
New South Wales ..	8,564,911	2,683,417	11,248,328	11,319,887
Victoria	5,310,787	2,002,804	7,313,591	6,914,993
Queensland	2,784,585	810,855	3,595,440	3,607,864
South Australia* ..	2,025,402	556,949	2,582,351	2,707,253
Tasmania †	552,811	304,857	857,668	879,356
Total	21,723,268	7,424,126	29,147,394	29,127,665

*Including the Northern Territory. † Year ended 31st December, 1903.

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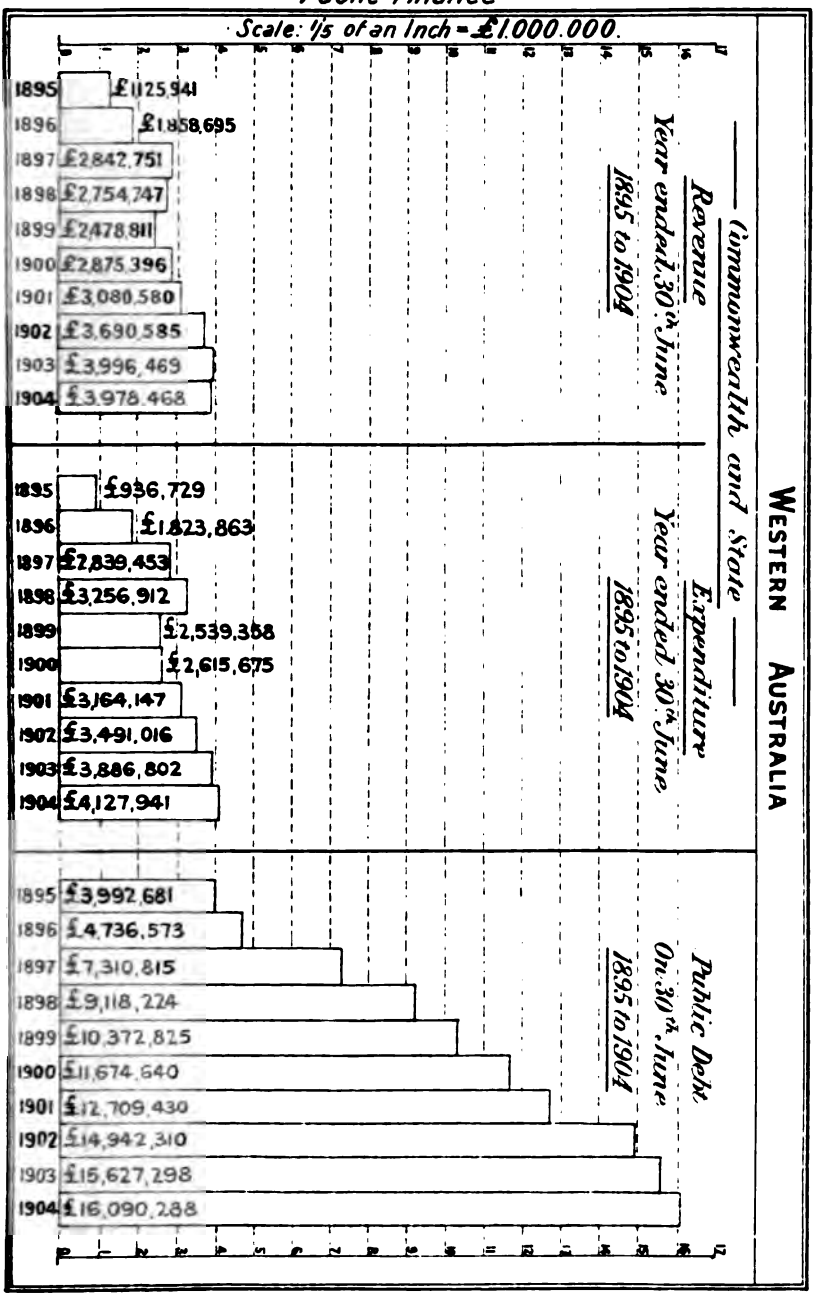
Public Finance



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REVENUE AND EXPENDITURE OF COMMONWEALTH GOVERNMENT.

The Revenue and Expenditure of the Commonwealth Government in respect of each of the States for the year ended 30th June, 1904, are as follows:—

State.	Revenue collected by Commonwealth Government.	Expenditure by Commonwealth Government on "New" and Transferred Services.	Surplus Commonwealth Revenue returned to State.	Balance due to State on 30th June, 1904.
	£	£	£	£
Western Australia ..	1,493,696	429,661	1,065,244	925
New South Wales ..	4,166,289	1,475,033	2,683,417	2,925
Victoria	3,102,450	1,099,910	2,002,804	377
Queensland	1,458,281	653,987	810,855	* 1,145
South Australia* ..	963,113	411,375	556,949	† 1,422
Tasmania	447,175	182,617	263,191	486
Total	11,631,004	4,252,583	7,382,460	2,146

* Including the Northern Territory. † Balance due to Commonwealth Government.

II.—GENERAL LOAN FUND.

In 1896, an Act entitled "The Loans Consolidation Act, 1896," was passed, which made provision for merging the balances of Loans unexpended on 30th June, 1896, in a fund to be known as "The General Loan Fund." Prior to this the practice which had been in vogue since the initiation of Loan Expenditure in this State was to keep separate and distinct all the accounts and transactions connected with each of the several loans issued from time to time; but since the establishment of this fund, the proceeds of all new loans have been passed to its credit. Particulars relative to the Fund for the financial year 1903-4 are as follows:—

Receipts.		Net Expenditure.	
	£		£
Balance on 1st July, 1903	103,333	Departmental	77,807
Sales of Materials and other credits connected with expenditure of previous years	40,572	Railways, etc.	589,127
Proceeds of Sale of—		Harbour and River Improvements	98,259
Local Inscribed Stock ..	246,700	Water Supply and Sewerage	272,085
Local Debentures ..	218,037	Development of Goldfields and Mineral Resources	38,146
Balance due to Treasurer on 30th June, 1904 ..	142,558	Development of Agriculture, etc.	12,167
			1,087,591
		Less expenditure in previous years from Loans Suspense Account, now carried to General Account	336,391
	751,200		751,200

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Under the head of "Railways, etc." the largest item of Expenditure for the year was that of "Railway Workshops," the amount spent thereon being £199,040. The outlay on "Rolling Stock" was £80,503, while a sum of £53,575 was spent in connection with the construction of the line from Menzies to Leonora. "Additions and Improvements to opened lines" absorbed £65,940, "Purchase of Land, Rocky Bay," £49,743, and "Rails and Fastenings," £48,071.

The principal works concerned in the expenditure of £98,259 on "Harbour and River Improvements" were the Fremantle Harbour Works, £29,786, and the Albany Harbour Works, £15,649; while an outlay of £12,378 was also incurred in connection with lighthouses.

The largest item in the total of £272,085 for "Water Supply and Sewerage" was a sum of £245,560 applied to the completion of the Goldfields Water Scheme.

Of the £38,146 devoted to "the Development of Goldfields and Mineral Resources," the Eastern Goldfields absorbed £17,459, the balance being distributed over the various Goldfields and other Mineral Districts of the State for the assistance of developmental work.

In the following table is shown the total Expenditure from Loans to 30th June, 1904, on each of the Classes of Public Works, etc., specified therein. This statement is, unfortunately, hardly as complete as might be desired, owing to the fact that a portion of the sum which appears under the indefinite head of "Development of Goldfields and Mineral Resources," in accordance with the Schedules of the Loan Acts, has been spent on some of the works separately specified. The item most affected by this classification is, probably, that of "Water Supply and Sewerage." In this table the item "Departmental," which appeared in the statement of the General Loan Fund, has been apportioned to the various specified heads according to the Departmental Expenditure incurred in connection with each :—

Public Works and Services.	Loan Expenditure to 30th June, 1904.
	£
Railways and Tramways	9,050,707
Electric Telegraphs	269,308
Harbours, Rivers, Lighthouses, etc.	2,057,778
Roads and Bridges	142,538
Public Buildings	63,876
Water Supply and Sewerage	2,873,241
Development of Goldfields and Mineral Resources ..	864,714
Agricultural Surveys and Development	394,886
Immigration	28,085
Miscellaneous	63,352
Total	15,808,485

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The total here shown is the actual cash expenditure in connection with the Public Works and Services carried out by means of Loans. As, however, most of these loans were raised at a discount, and as, in addition, the expenses of flotation were, in many cases, very heavy, the amount of indebtedness represented by this expenditure is considerably greater than the expenditure itself. Other factors to be taken into consideration in this connection are the advances to Loan Funds, the net results of Loan conversions, and the amount redeemed.

The following statement shows the effects of these various operations, and gives the total public debt on 30th June, 1904 :—

Particulars.		Amount.
		£
Total Expenditure on Works and Services		15,808,485
Expenses raising Loans (less premiums on Loans, 1893 and 1894)		154,794
Discounts on Loans raisings and Flotation Expenses, not specifically provided for on Loan Schedules		450,014
Premiums on Debentures converted into Inscribed Stock		5,449
Conversion Expenses		3,525
		16,422,267
Less Discounts on Debentures converted into Inscribed Stock ..	£3,721	
Debentures redeemed	185,700	
Debit Balance General Loan Fund ..	142,558	
		331,979
Public Debt on 30th June, 1904		16,090,288

It may be pointed out that had there been no redemption of Loans, the total Public Debt of the State on 30th June, 1904, would have been £16,275,988, while the amount of cash available for expenditure which that indebtedness represents is £15,665,927, or about 96¼ per cent. ; the balance of 3¾ per cent. being absorbed in discount, expenses, etc.

Public Debt of Western Australia.

The earliest records of Loan transactions of the Government of Western Australia are those contained in an Ordinance passed on the 7th August, 1845, "to authorise the Governor of Western Australia to raise the sum of £2,000 on Loan for the erection of a Gaol, or for other public services of the Colony." On the 6th May, 1854, a further Ordinance was passed "to empower the Governor to raise £800 for the purchase of certain building allotments in the town of Perth." This was succeeded by an Ordinance passed on the 17th September, 1858, "to enable the Governor to borrow £7,000, and to apply the same towards the erection of a new Government House."

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These loans appear to have been all of a purely temporary nature, and to have been repaid prior to the inauguration of the Public Works Loan Policy, as at present understood. which may be said to date from the passing, on the 15th August, 1872, of "An Act for the raising of £35,000 by Loan for the construction of certain Public Works."

The public debt of Western Australia may, therefore, be considered as dating from the raising of this Loan, which was effected in 1873 by the issue of debentures bearing interest at 6 per cent., and having a currency of 28 years, at the expiration of which time they were to be repayable at par. Further sums have been raised from time to time under Acts passed in 1873, 1875, 1878, 1881, 1882, 1884, 1888, 1891, 1893, 1894, 1896, 1897, 1899, 1901, and 1904.

In connection with each of the Loan issues of this State, provision has been made for a Sinking Fund, the investment of which has been placed in the hands of Trustees in London.

Particulars for each of the financial years 1894-5 to 1903-4, relative to the total amount of debt outstanding, the accrued sinking fund, and the net indebtedness, together with the amounts per head of population, are as follows :—

Date.	Public Debt.		Accrued Sinking Fund.	Net Indebtedness.	
	Amount.	Per Head of Population.		Amount.	Per Head of Population.
	£	£ s. d.	£	£	£ s. d.
30th June, 1895 ..	3,992,681	44 12 5	154,785	3,837,896	42 17 10
" 1896 ..	4,736,573	38 14 6	175,033	4,561,540	37 5 11
" 1897 ..	7,310,815	46 7 7	205,637	7,105,178	45 1 6
" 1898 ..	9,118,224	53 8 4	255,784	8,862,440	51 18 4
" 1899 ..	10,372,825	61 13 11	310,373	10,062,452	59 17 0
" 1900 ..	11,674,640	65 13 4	377,161	11,297,479	63 10 11
" 1901 ..	12,709,430	67 5 0	431,478	12,277,952	64 19 4
" 1902 ..	14,942,310	72 3 5	486,737	14,455,573	69 16 5
" 1903 ..	15,627,298	70 7 11	655,069	14,972,229	67 8 11
" 1904 ..	16,090,288	67 12 1	* 864,752	15,225,536	63 19 5

* Including £3,452 not carried to General Account until after close of Financial Year.

It will be seen that during the nine years that elapsed between the 30th June, 1895, and the 30th June, 1904, the Net Indebtedness of Western Australia increased by no less a sum than £11,387,640, or an average of £1,265,293 per annum. The year that was responsible for the largest addition was that ended 30th June, 1897, during which the net indebtedness increased by £2,543,638, while the smallest increment during the period under review was that of £253,307, for the year ended 30th June, 1904.

The conditions under which the loans have been issued have varied considerably from time to time, two important variations

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being the substitution of inscribed stock for debentures, and the gradual reduction of the rate of interest involved. As before mentioned, the Loan authorised by the 1872 Loan Act, and raised in 1873, was at 6 per cent. This was, however, the only Loan obtained at so high a rate of interest, the next issues being made at 5 per cent. during the years 1874 to 1877. In 1879 the first 4½ per cent. Loan was raised, while money at 4 per cent. was first obtained in 1881, at 3½ per cent. in 1895, and at 3 per cent. in 1896.

The following table furnishes particulars relative to the amount of Debentures and Inscribed Stock at each rate of interest, in circulation on 30th June, 1904 :—

Rate of Interest.	Public Debt on 30th June, 1904.		
	Debentures.	Inscribed Stock.	Total.
%	£	£	£
5	17,600	..	17,600
4½	69,100	..	69,100
4	349,650	3,609,118	3,958,768
3½	..	4,694,820	4,694,820
3	..	7,350,000	7,350,000
Total ..	436,350	15,653,938	16,090,288

The effect of the reductions in the rate of interest payable in respect of Loans may be most readily seen by comparing the amounts at the several rates on the 30th June, 1904, with those for the corresponding years in the three previous decades :—

Rate of Interest.	Public Debt on 31st December, 1874.	Public Debt on 31st December, 1884.	Public Debt on 30th June, 1894.	Public Debt on 30th June, 1904.
%	£	£	£	£
6	35,000	35,000	33,000	..
5	30,000	126,000	83,100	17,600
4½	..	200,000	279,085	69,100
4	..	404,000	3,022,154	3,958,768
3½	..	..	..	4,694,820
3	..	..	..	7,350,000
Total ..	65,000	765,000	3,417,339	16,090,288
Average rate payable ..	5·54%	4·39%	4·08%	3·40%

It may be mentioned that the average rate of interest payable on the nominal amount of Western Australian Public Debt, viz., 3·40 per cent., is less than the corresponding rate in the case of any other of the Australian States or the colony of New Zealand.

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The due dates of the Public Debt outstanding on 30th June, 1904, are as follows:—

Year when due.	Public Debt on 30th June, 1904.		
	Debentures.	Inscribed Stock.	Total.
	£	£	£
1905	17,600	..	17,600
1910	..	1,529,105	1,529,105
1915	..	35,715	35,715
1923	..	605,325	605,325
1924	220,350	134,240	354,590
1927	..	2,500,000	2,500,000
1931	..	1,876,000	1,876,000
1934	..	993,553	993,553
1935	..	6,880,000	6,880,000
1936	..	1,100,000	1,100,000
Annual Drawings ..	198,400	..	198,400
Total	436,350	15,653,938	16,090,288

In the case of several of the loans issued in recent years, the Government has reserved the option of redeeming at par on giving twelve calendar months' notice at any time within a certain specified period prior to the date of maturity

Thus, of the £1,529,105 due in 1910, the Government has the option of redeeming, under the above conditions, £460,280 at any time within four years prior to the date of maturity. Similarly the whole of the amounts due in 1923 and 1924 are redeemable at any time within 10 years prior to these dates, while those due in 1931 and 1936, as well as £4,500,000 of that due in 1935, may be redeemed at any time within 20 years prior to these dates, and the balance of £2,380,000 due in 1935 is similarly redeemable at any time within 15 years prior to the date of maturity.

In addition to the Debentures and Inscribed Stock which make up the total of the Public Debt of the State as at 30th June, 1904,

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on various occasions during recent years, occupied a position in the Debt statement, and has, since the close of the last financial year, again been added to the list, Treasury Bills to the amount of £500,000 dating from 1st January, 1905, having been issued in London. Under 57 Vict., No. 2, as amended by 61 Vict., No. 1, the Colonial Treasurer is empowered to issue Treasury Bills to any amount, not exceeding £3,000,000, authorised to be raised by any Loan Act, the Bills to be issued for sums of £10 or any multiple thereof, and the rate of interest not to exceed 5 per cent. These Bills were first issued in 1893, and were intended to be a temporary means of raising loan moneys in cases when, owing to the state of the money market, or for other reasons, it was deemed injudicious at the time to contract a permanent loan. They differ materially from English Treasury Bills, and correspond rather to the Exchequer Bonds which were in force in England until 1897. They are, in fact, short term debentures, and have usually been issued for periods varying from one to four years.

Of the total of £15,653,938 of Inscribed Stock in circulation on 30th June, 1904, £2,304,385 was inscribed locally at the State Treasury under the provisions of "The Local Inscribed Stock Act, 1897" (61 Vict., No. 8), and subsequent amending Acts. Under these Acts it is provided that the Governor may from time to time authorise the issue of "Local Inscribed Stock" at the Treasury at Perth, for any sum not exceeding, in the whole, the sum which, at the time of issue, is authorised by any Act of Parliament to be borrowed. The Stock is required to be issued for £5 or any multiple thereof, the date of redemption to be not later than 50 years from that of issue, and the rate of interest not to exceed 4 per cent. per annum. Of the total amount outstanding on 30th June, 1904, £1,564,820 was issued at 3½ and £739,565 at 4 per cent. In February, 1904, Debentures to the amount of £220,350 were issued locally at 4 per cent.

The figures which, in the foregoing pages, have been given as the Public Debt of this State on 30th June, 1904, are exclusive of Mortgage Bonds to the amount of £212,600, issued under the Agricultural Bank Act, to raise funds for promoting the occupation, cultivation, and improvement of agricultural lands, and also of Debentures amounting to £97,626 issued under the Agricultural Lands Purchase Act in connection with the purchase of estates for subdivision and re-sale, and of £500 issued under "The Land Drainage Act, 1900." As the interest and sinking funds connected with these bonds and debentures are not charged against the Consolidated Revenue Fund, but are paid out of special Trust Funds created under the respective Acts, it has been considered by the Treasury that these loans should not be treated as constituting another form of Government security, viz., the Treasury Bill, has,

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portion of the Public Debt, and consequently they have, throughout this chapter, been excluded from the total.

As before stated, provision is made for a Sinking Fund in the case of each of the Western Australian Loans issued, the annual instalments varying in different instances, from 1 to 3 per cent. of the nominal amount of the loan. These instalments are a charge upon the Consolidated Revenue Fund of the State, and are placed in the hands of Trustees in London, to be invested and from time to time applied to the redemption of loans falling due. Up to 30th June, 1904, Debentures to the amount of £185,700 had been redeemed by means of this fund, while the investments of the fund at that date, together with the sum in the hands of the trustees or placed at interest by them with the London and Westminster Bank, totalled £864,752. The securities in which the fund is invested consist entirely of those of the British, Indian, and Colonial Governments. Particulars relative to the position of the Sinking Funds at the end of each of the financial years, 1894-5 to 1903-4, are as follows :—

Date.	Sinking Funds.		
	Amount.	Average Rate of Interest at which invested.	Percentage on Total Public Debt.
	£	%	%
30th June, 1895	154,785	3.57	3.88
Do. 1896	175,033	3.62	3.70
Do. 1897	205,637	3.58	2.81
Do. 1898	255,784	3.49	2.81
Do. 1899	310,373	3.42	2.99
Do. 1900	377,161	3.33	3.23
Do. 1901	431,478	3.36	3.39
Do. 1902	486,737	3.32	3.26
Do. 1903	655,069	3.23	4.19
Do. 1904	*864,752	3.26	5.37

* Including £3,452 not carried to General Account until after close of Financial Year.

During the year ended 30th June, 1902, two Western Australian Loans of £1,500,000 each were floated in London, one on the 18th September, 1901, and the other on the 30th January, 1902, the latter being the latest date, prior to the recent issue of Treasury Bills above referred to, on which application had been made by this State to the London market. The former loan, which was floated at 3 per cent., was the second instalment of the loan authorised by the Coolgardie Goldfields Water Supply Loan Act, 1896, while the latter, which was a 3½ per cent. loan, comprised a second instalment of £300,000 under "The Loan Act, 1899," and a first instalment of £1,200,000 under that of 1901. Detailed

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particulars relative to the flotation of these loans are as follows:—

Particulars.	Coolgardie Goldfields Water Supply Loan Act, 1896 (60 Vict., No. 12).	Loan Act, 1899 (63 Vict., No. 44).	Loan Act, 1901 (Edwd. VII., No. 2).
	Second Instalment.	Second Instalment.	First Instalment.
Nominal Amount	£1,500,000	£300,000	£1,200,000
Nominal Rate of Interest	3 per cent.	3½ per cent.	3½ per cent.
Interest payable half-yearly	15 Jan., and 15th July	1st May and 1st Nov.	1st May and 1st Nov.
Principal re-payable at par	15th January, 1927	1st May, 1935	1st May, 1935
Date on and after which the Government has the option of redeeming the Stock at par on giving 12 calendar months' notice	No option	1st May, 1920	1st May, 1920
When Floated	18th September, 1901	30th January, 1902	30th January, 1902
Minimum Price fixed	£91 per cent.	£102 10s. 0d.	£102 10s. 0d.
Payment in Full	25th November, 1901	14th April, 1902	14th April, 1902
Gross Proceeds	£1,365,000	£307,500	£1,230,000
Gross Proceeds per £100 (nominal)	£91	£102 10s. 0d.	£102 10s. 0d.
Flotation Expenses (including net discount on prepayment of Instalments)	£36,999 16s. 0d.	£7,257 14s. 0d.	£29,030 16s. 2d.
Flotation Expenses per £100 (nominal)	£2 9s. 4d.	£2 8s. 5d.	£2 8s. 5d.
Net Proceeds available for Expenditure	£1,328,000 4s. 0d.	£300,242 6s. 0d.	£1,200,969 3s. 10d.
Accrued Interest	£14,872 4s. 0d.	£3,941 1s. 11d.	£15,764 7s. 8d.
Net Proceeds, less Accrued Interest	£1,313,128	£296,301 4s. 1d.	£1,185,204 16s. 2d.
Net Proceeds, less Accrued Interest, per £100 (nominal)	£87 10s. 10d.	£98 15s. 4d.	£98 15s. 4d.
Rate of Interest per £100 sterling paid by the Government:—			
(a.) If no allowance be made for redemption at par	£3 8s. 6d.	£3 10s. 10d.	£3 10s. 10d.
(b.) If allowance be made for redemption at par at earliest date of maturity	*£3 15s. 3d.	£3 11s. 10d.	£3 11s. 10d.
(c.) If allowance be made for redemption at par at latest date of maturity	..	£3 11s. 3d.	£3 11s. 3d.
Rate of Interest per £100 sterling yielded to Original Investors:—			
(a.) If no allowance be made for redemption at par	£3 6s. 8d.	£3 9s. 2d.	£3 9s. 2d.
(b.) If the stock be held till repayment at earliest date of maturity	*£3 12s. 1d.	£3 8s. 3d.	£3 8s. 3d.
(c.) If the stock be held till repayment at latest date of maturity	..	£3 8s. 10d.	£3 8s. 10d.

*One date only.

It will be seen from the above table that the nominal rate of interest payable furnishes but poor indication of the cost to the Government of any particular loan, since the amount of discount or premium at which the loan was floated, the expense incurred, the amount of accrued interest, the term of the loan, and the fact of

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repayment at par at the end of the term must all be taken into consideration. The true rates of interest involved, according to the various standpoints from which the question may be viewed, are shown in the lower portion of this table, the rate most suitable for comparative purposes in this connection being probably that which gives the "Interest per £100 sterling paid by the Government, if allowance be made for redemption at par at latest date of maturity."

The following table, which gives particulars relating to Loans floated on the London market from 1894 onwards, furnishes a comparative statement of such rates:—

Date of Issue.	Term of Loan.	Nominal Amount Raised.	Nominal Rate of Interest payable.	True Rate of Interest per £100 sterling paid by the Government if allowance be made for redemption at par at latest date of maturity.
	Years.	£	%	£ s. d.
12th June, 1894	37	540,000	4	3 19 1
2nd May, 1895	40	750,000	3½	3 8 8
4th May, 1896	39	750,000	3	3 0 8
14th May, 1897	38	1,000,000	3	3 6 1
14th January, 1898	29	1,000,000	3	3 5 8
26th July and 30th September, 1898	37	1,000,000	3	3 7 8
22nd March, 1900	35½	1,000,000	3	3 10 3
27th November, 1900	34½	500,000	3½	3 13 8
27th November, 1900	34½	380,000	3½	3 13 8
18th September, 1901	25½	1,500,000	3	3 15 3
30th January, 1902	33½	300,000	3½	3 11 3
30th January, 1902	33½	1,200,000	3½	3 11 3

In May, 1903, a Loan of £483,215 was raised locally by the issue of Inscribed Stock, applications from intending subscribers being invited by advertisement in the various States of the Commonwealth. Particulars relative to the flotation are as follows:—

Particulars.	Local Inscribed Stock Loan, 1913–23.
Nominal Amount	£483,215
Nominal Rate of Interest	4 per cent.
Interest payable	1st January and 1st July.
Principal re-payable	1st January, 1923
Date on or after which the Government or the stockholder has the option of redeeming at par on giving 12 calendar months' notice	1st January, 1913
When Floated	14th May, 1903.
Minimum Price fixed	Par.
Payment in Full	21st May, 1903.
Gross Proceeds	£483,215.
Gross Proceeds per £100 (nominal)	£100.
Flotation Expenses	£3,399 18s. 1d.
Flotation Expenses per £100 (nominal)	14s. 1d.
Net Proceeds available for Expenditure	£479,815 1s. 11d.
Net Proceeds per £100 (nominal)	£99 5s. 11d.
Accrued Interest	£1,093 10s. 5d.
Net Proceeds, less Accrued Interest	£478,721 11s. 6d.
Net Proceeds, less Accrued Interest, per £100 (nominal) ..	£99 1s. 5d.
Rate of Interest per £100 sterling paid by the Government:—	
(a.) If no allowance be made for redemption at par ..	£4 0s. 9d.
(b.) If allowance be made for redemption at par at earliest date of maturity	£4 2s. 4d.
(c.) If allowance be made for redemption at par at latest date of maturity	£4 1s. 5d.
Rate of Interest per £100 sterling yielded to Original Investors:—	
(a.) If no allowance be made for redemption at par ..	£4 0s. 2d.
(b.) If the Stock be held till repayment at earliest date of maturity	£4 0s. 7d.
(c.) If the Stock be held till repayment at latest date of maturity	£4 0s. 4d.

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Public Debt of the Commonwealth States.

The Public Debt of the several States of the Commonwealth on 30th June, 1904, together with the annual amounts and the average rates of interest payable thereon, are as follows; the figures given for Tasmania being those for 31st December, 1903:—

State.	Public Debt on 30th June, 1904.		
	Amount Outstanding.	Annual Interest Payable.	Average rate of Interest Payable.
	£	£	£ s. d.
Western Australia ..	16,090,288	547,159	3 8 0
New South Wales ..	80,033,581	2,841,368	3 11 0
Victoria	51,819,962	1,885,949	3 12 9
Queensland	41,273,297	1,529,690	3 14 1
South Australia* ..	28,593,645	1,069,325	3 14 10
Tasmania †	9,318,400	341,627	3 13 4
Total ..	227,129,173	8,215,118	3 12 4

*Including the Northern Territory. † Particulars for 31st December, 1903.

In dealing with the Public Debt obligations of a community, it is of importance to compute the indebtedness not only per head of total population, but also per head of adult population, or, perhaps better still, per head of adult male population, since it is on these that the main burden of the Debt naturally falls, and on their energy and resources that the community must rely for the due payment of interest and other charges. Calculated on these three bases, the Public Debts per head of population for the several States of the Commonwealth are as follows:—

State.	Public Debt on 30th June, 1904.		
	Per Head of Estimated Total Population.	Per Head of Estimated Adult Population.	Per Head of Estimated Adult Male Population.
	£ s. d.	£ s. d.	£ s. d.
Western Australia ..	67 12 1	109 0 2	165 14 9
New South Wales ..	55 7 2	107 4 4	196 4 1
Victoria	42 19 3	79 7 11	158 14 2
Queensland	79 7 7	153 9 6	257 6 11
South Australia* ..	77 9 1	151 2 3	293 15 7
Tasmania†	51 18 4	103 14 7	195 9 1
Commonwealth ..	57 7 7	108 8 7	199 15 8

*Including the Northern Territory. † Particulars for 31st December, 1903.

The above table brings out clearly the effect of taking into account the age and sex constitution of the population. For instance,

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when the total population is considered irrespective of age and sex, the Western Australian Public Debt per head is seen to be much higher than those of Victoria, Tasmania, and New South Wales. In the case of the amount of Debt per head of adult population, however, although these four States occupy the same relative positions, the excess in the case of Western Australia is proportionately not nearly so large, while, when the amounts per head of adult male population are compared, it is found that only one of the States, viz., Victoria, has a smaller Debt per head than Western Australia, and that even in that instance the difference is not great.

III.—TRUST FUND.

Under this head are now included all the various Trust and Deposit Accounts controlled by the Government, as well as the Public Debt Sinking Fund placed for investment in the hands of the Sinking Fund Trustees in London. The total amount of the Trust Fund on 30th June, 1894, was £658,902; but during the succeeding ten years it increased so rapidly, that on 30th June, 1904, it had reached £3,849,848.

The following are the principal items contributing to this latter total:—

Account.	Amount.
	£
Post Office Savings Bank	2,087,675
Public Debt Sinking Fund	861,300
Bondholders—Interest due	162,544
Life Assurance Companies' Deposits	127,743
Sinking Funds—Municipal Loans	66,379
Roads Boards' Current Accounts	65,144
London and Westminster Bank	60,000
Contractors' Deposits	38,725
Agricultural Bank Advances Redemption Account ..	24,842
Accident and Guarantee Insurance Companies' Deposits	20,000
Fire and Marine Insurance Companies' Deposits	20,000
Agricultural Land Purchase Act Trust Fund	15,547
Curator Intestates' Estates	15,412
Midland Railway	14,431
Assurance Fund	12,255
Official Receiver in Bankruptcy	10,992
Registrar, Supreme Court	10,825
Police Benefit Fund	8,483
Other Accounts	227,551
Total, Trust Fund	3,849,848

Of the total amount of the Trust Fund on 30th June, 1904, rather more than 54 per cent. belonged to the Post Office Savings Bank Accounts, and about 22 per cent. to the Public Debt Sinking Fund. From the attached table, which furnishes particulars of the Trust Fund at the end of each of the ten financial years 1894-5 to 1903-4, it will be seen that, although this preponderance of

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Savings Bank Accounts was not in evidence during the earlier years of the decennium, yet, in every case, a very considerable proportion of the Trust Fund was due to them :—

Date.	Post Office Savings Bank Accounts.	Public Debt Sinking Fund.	Other Accounts.	Total Trust Fund.
30th June, 1895 ..	222,285	154,785	361,392	738,462
Do. 1896 ..	457,972	175,033	653,655	1,286,660
Do. 1897 ..	858,575	205,637	592,965	1,657,177
Do. 1898 ..	1,072,591	255,784	906,140	2,234,515
Do. 1899 ..	1,116,276	310,373	574,407	2,001,056
Do. 1900 ..	1,307,999	377,161	494,143	2,179,303
Do. 1901 ..	1,620,826	431,478	536,194	2,588,498
Do. 1902 ..	1,891,648	486,737	598,004	2,976,389
Do. 1903 ..	1,990,863	655,069	661,425	3,307,357
Do. 1904 ..	2,087,675	861,300	900,873	3,849,848

2.—PRIVATE FINANCE.

(*a.*) Banks of Issue.

The Commonwealth of Australia Constitution Act empowers the Federal Legislature to make laws with respect to banking, but up to the present time no legislation dealing with the subject has been passed by that body. The banking returns of the several States of the Commonwealth are consequently furnished in accordance with the different local enactments, which, as regards these requirements, do not differ materially from each other.

The earliest banking legislation of this State is embodied in an Act passed in 1837 (8 Gul. IV., No. 1), which provided, amongst

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other things, that all banks "issuing promissory notes payable to bearer on demand" should keep weekly accounts of the amount of notes in circulation and of deposits, and should furnish quarterly to the Colonial Secretary a return showing the averages of such weekly accounts. Subsequently, in an Ordinance passed in 1866 to incorporate the National Bank of Australasia (30 Vict., No. 9), and again in an Act passed in 1879 to incorporate the Western Australian Bank (42 Vict., No. 33), the forms of the returns required from these two banks were included as schedules to the respective enactments. These returns were also required to be furnished quarterly to the Colonial Secretary, and were to comprise the averages of the statements prepared weekly, showing under certain specified heads the assets and liabilities of the banks. In addition to these particulars, a statement of the capital of each bank was required, together with the rate and amount of the dividend last paid and the amount of reserved profits. The forms laid down in these enactments are those at present in use.

Under the provisions of "The Stamp Act, 1882," every bank issuing notes "without affixing thereto the stamp by this Act required to be affixed to promissory notes" is, under a penalty of £500, compelled to furnish quarterly the returns above referred to.

The following are the banks of issue at present operating in this State:—

Bank.	Locality of Head Office.	Act of Incorporation.	Date when Business commenced in Western Australia.
Bank of Australasia	London ...	Royal Charter ...	* May, 1841
Western Australian Bank ...	Perth ...	Special Act ...	23rd June, 1841
National Bank of Australasia, Limited	Melbourne ...	Victorian Companies Act, 1890	1866
Union Bank of Australia, Limited	London ...	English Companies Acts, 1862-79	1878
Bank of New South Wales ...	Sydney ...	Special Act ...	1883
Commercial Bank of Australia, Limited	Melbourne ...	Victorian Companies Act, 1890	10th January, 1888

* Discontinued about 1845, and recommenced 2nd May, 1894.

It will be seen that of these six banks two have their head offices in London, two in Melbourne, one in Perth, and one in Sydney.

The first bank of issue to commence business in this State appears to have been the Bank of Western Australia, which opened on 1st June, 1837, with a nominal capital of £10,000, of which 25 per cent. only was called up. Small deposits were received on the Savings Bank principle, and interest was allowed at the rate of 5 per cent.

In May, 1841, the business of this bank was bought out by the Bank of Australasia, while on 23rd June, in the same year, the present Western Australian Bank was opened.

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The Bank of Australasia however, did not, on that occasion, continue its operations in this State for any great length of time, as it appears to have closed its Western Australian branch in 1845. Nearly fifty years later it again commenced business here, and opened a branch in Perth in May, 1894.

The head office is at 4 Threadneedle Street, London, E.C., and branches have been established in all the States of Australia and the Colony of New Zealand. This bank was incorporated by Royal Charter in 1835, and has at the present time a paid-up capital of £1,600,000, a reserve fund of £1,160,000, and a reserve liability of proprietors under the Charter of £1,600,000. On 31st October, 1904, branches had been established in this State at Broad Arrow, Bunbury, Coolgardie, Cue, Davyhurst, Duketon, Fremantle, Kalgoorlie, Laverton, Lennonville, Menzies, Peak Hill, and Perth.

The Western Australian Bank, which commenced business in this State in 1841, is a purely local bank, having no branches elsewhere than in Western Australia. It was incorporated under a Special Act of the Western Australian Legislature, which was passed in 1878, but subsequently repealed and re-enacted with amendments in 1896. The authorised capital with which the bank was established was £20,000, but this has since been increased to £250,000, in 25,000 shares of £10 each, of which £125,000 is paid up. The reserve fund amounts to £300,000, reserved profits to £27,288 4s. 10d., and the reserve liability of shareholders to £125,000. In addition to the head office in Perth, branches and agencies had, on 31st October, 1904, been established in Albany, Beverley, Black Range (Nunngarra), Boulder, Bridgetown, Broad Arrow, Bulong, Bunbury, Burtville, Busselton, Coolgardie, Cuballing, Cue, Day Dawn, Dongara, Duketon (North Erlistoun), Esperance, Fremantle, Geraldton, Greenbushes, Guildford, Kalgoorlie, Kanowna, Katanning, Kookynie, Laverton, Lennonville, Leonora, Meekatharra, Menzies, Midland Junction, Mount Magnet, Mount Malcolm, Mount Morgans, Nannine, Narrogin, Newcastle, Norseman, Northam, Pingelly, Ravensthorpe, Southern Cross, Wagin, York, and Yundamindera (The Granites). The London agents for the bank are the Bank of Adelaide, 11 Leadenhall Street, E.C.

In 1866, twenty-five years after the inauguration of the Western Australian Bank, the National Bank of Australasia, Melbourne, established a branch of its business in this State, a special Act of incorporation being passed by the Western Australian legislature in 1866, and amended in 1867. The head office of the bank is in Melbourne, and branches exist in Victoria, South Australia, New South Wales, and Western Australia, while the London Office is at 123 Bishopsgate Street Within, E.C. The authorised capital is £3,407,904, of which £1,498,220 is paid up. The reserve fund amounts to £105,000, and the reserve liability of shareholders to £715,464. As a result of the financial crisis of 1893, this bank was reconstructed under the title of "The National Bank of Australasia, Limited." The Western Australian branches and

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agencies in existence on 31st October, 1904, were situated at Albany, Coolgardie, Cuballing, Fremantle, Geraldton, Kalgoorlie, Katanning (with agency at Broome Hill), Leonora, Mount Morgans, Narrogin, Northam, Perth, and Wagin.

In 1878, twelve years after the advent of the National Bank of Australasia, a branch of the Union Bank of Australia, Limited, commenced business here. This bank was established in 1837, and has its head office at 71 Cornhill, London, E.C., while branches have been opened in all the States of Australia, and the Colony of New Zealand The paid-up capital is £1,500,000; the reserve funds, £1,025,000; and the reserve liability of proprietors, £3,000,000. On 31st October, 1904, branches had been established in the following Western Australian towns:—Albany, Beverley, Broome, Bunbury, Burtville, Carnarvon, Coolgardie, Cue, Fremantle, Geraldton, Kalgoorlie, Kanowna, Kookynie, Lawlers, Marble Bar, Narrogin, Northam, Perth, Port Hedland, Roebourne, Sir Samuel, Wiluna, and York.

The next to start operations in this State was the Bank of New South Wales, which opened a branch in Perth in 1883. This bank, which appears to be the oldest of the banks of issue trading in Australasia, was established in 1817, and has at present a paid-up capital of £2,000,000, and a reserve fund of £1,370,000; while the reserve liability of proprietors amounts to £2,000,000. The head office is in Sydney, and branches have been opened in all the States of the Commonwealth except Tasmania, as well as in the Colonies of New Zealand and Fiji. The London branch is situated in Old Broad Street. Six branches had, on 31st October, 1904, been established in this State, viz., at Boulder, Coolgardie, Fremantle, Kalgoorlie, Lawlers, and Perth.

In 1885 a branch of the Commercial Bank of South Australia was opened in Perth, but owing to the fact that this bank went into liquidation in 1886 its career in this State was very short-lived, the only record of its transactions which appears in the Western Australian *Government Gazette* being the returns for the quarter ended 31st December, 1885.

In 1888 the Commercial Bank of Australia commenced business in this State by opening a branch in Perth. The head office of this bank is in Melbourne, and branches exist in all the States of the Commonwealth except Tasmania. The London office is at 1 Bishopsgate Street Within, corner of Leadenhall Street, E.C. During the financial crisis of 1893 it was found necessary to effect a reconstruction, the name taken by the reconstructed institution being "The Commercial Bank of Australia, Limited." The registered capital amounts at present to £3,150,000; the paid-up capital to £2,212,594, and the "Special Assets Trust Reserve" to £183,000. There were, on 31st October, 1904, eight branches of the bank in this State, situated at Boulder, Collie, Coolgardie, Fremantle, Kalgoorlie, Perth, Southern Cross, and Subiaco, respectively.

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Liabilities and Assets.

The averages for the year 1903 of the weekly statements of the liabilities in this State of each of the banks, prepared in accordance with the forms previously referred to, are as follows:—

Bank.	Average Liabilities in Western Australia, 1903.						
	Notes in Circulation.	Bills in Circulation.	Balances due to other Banks.	Deposits.			Total Average Liabilities.
				Not bearing Interest.	Bearing Interest.	Total.	
	£	£	£	£	£	£	£
Western Australian Bank	121,732	35,462	59,377	1,068,363	596,100	1,664,463	1,881,034
National Bank of Australasia, Ltd. ...	55,815	3,615	3,361	327,219	163,199	490,418	553,209
Union Bank of Australia, Ltd. ...	109,702	6,208	...	942,539	363,311	1,305,850	1,421,760
Bank of New South Wales	22,816	1,336	4,571	398,063	161,208	559,271	587,994
Commercial Bank of Australia, Ltd. ...	11,653	818	...	165,574	44,675	210,249	222,720
Bank of Australasia	66,202	5,491	...	410,181	151,658	561,839	633,532
All Banks	387,920	52,930	67,309	3,311,939	1,480,151	4,792,090	5,300,249

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The next table furnishes corresponding particulars relative to assets for the year 1903:—

Bank.	Average Assets in Western Australia, 1903.							
	Coined Gold, Silver, and other metals.	Gold and Silver, in Bullion and Bars.	Government Securities.	Landed Property and Bank Premises.	Notes and Bills of other Banks.	Balances due from other Banks.	Notes and Bills discounted, and other Debts to Banks not before enumerated.	Total Average Assets.
	£	£	£	£	£	£	£	£
Western Australian Bank	598,707	194,108	67,375	61,007	33,743	115,601	1,290,654	2,361,195
National Bank of Australasia, Limited	184,068	38,203	385	36,233	7,973	932	622,436	890,230
Union Bank of Australia, Limited ...	376,382	183,414	...	24,284	6,887	692	934,647	1,526,306
Bank of New South Wales	220,482	98,271	23,462	24,365	795	3,018	293,564	663,957
Commercial Bank of Australia, Limited	80,874	4,094	...	27,690	7,729	14	201,150	321,551
Bank of Australasia	160,524	104,501	...	28,612	6,877	...	308,234	608,748
All Banks	1,621,037	622,591	91,222	202,191	64,004	120,257	3,650,685	6,371,987

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In the following table are given particulars for each of the ten years, 1894 to 1903, of the average liabilities of all the Banks of issue operating in this State. The figures shown are, in each case, the yearly averages of the statements prepared weekly by the banks, in accordance with "The Stamp Act, 1882":—

Year.	No. of Banks.	Average Liabilities in Western Australia.						
		Notes in Circulation.	Bills in Circulation.	Balances due to other Banks.	Deposits.			Total Average Liabilities.
					Not bearing Interest.	Bearing Interest.	Total.	
		£	£	£	£	£	£	£
1894	6	143,156	25,458	8,020	751,430	877,872	1,629,302	1,805,936
1895	6	214,679	57,465	15,185	1,593,372	996,355	2,589,727	2,877,056
1896	6	395,092	85,382	25 403	3,192,348	1,385,048	4,577,396	5,083,273
1897	6	374,993	75,396	68,774	3,096,105	973,562	4,069,667	4,588,830
1898	6	330,673	60,040	45,363	2,576,783	1,024,393	3,601,176	4,037,252
1899	6	315,189	34,658	38,507	2,547,152	1,261,477	3,808,629	4,196,983
1900	6	361,716	34,279	50,380	2,869,480	1,521,031	4,390,511	4,836,886
1901	6	378,372	40,735	73,172	2,980,390	1,456,373	4,436,763	4,929,042
1902	6	394,011	38,120	72,731	3,202,695	1,593,019	4,795,714	5,300,576
1903	6	387,920	52,930	67,309	3,311,939	1,480,151	4,792,090	5,300,249

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Corresponding details relative to the average assets for the ten years are as follows:—

Year.	No. of Banks.	Average Assets in Western Australia.							
		Coined Gold, Silver, and other metals.	Gold and Silver, in Bullion and Bars.	Government Securities.	Landed Property and Bank Premises.	Notes and Bills of other Banks.	Balances due from other Banks.	Notes and Bills discounted and other Debts to Banks not before enumerated.	Total Average Assets.
		£	£	£	£	£	£	£	£
1894	6	636,973	52,418	7,500	105,059	16,869	18,834	2,118,429	2,956,082
1895	6	1,200,582	76,894	7,500	103,625	31,199	142,987	2,385,662	3,948,449
1896	6	2,323,962	90,657	13,750	111,421	58,708	343,430	2,812,547	5,754,475
1897	6	2,102,831	132,165	116,000	136,481	37,328	104,187	3,349,806	5,978,798
1898	6	1,631,604	195,640	58,488	158,266	41,049	128,998	3,206,434	5,420,479
1899	6	1,527,902	238,484	43,118	181,199	53,343	124,523	2,817,465	4,986,034
1900	6	2,231,438	251,202	66,862	198,626	63,457	173,555	2,756,872	5,742,012
1901	6	2,056,540	321,515	81,689	202,238	63,506	157,951	3,061,330	5,944,769
1902	6	2,265,767	506,771	100,450	211,590	57,545	73,332	3,224,106	6,439,561
1903	6	1,621,037	622,591	91,222	202,191	64,004	120,257	3,650,685	6,371,987

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The following table furnishes a comparative statement of the total average liabilities and assets in this State of all the banks of issue for each of the past thirteen years:—

Year.	Total Average Liabilities in Western Australia.	Total Average Assets in Western Australia.	Surplus Assets in Western Australia.
	£	£	£
1891	1,291,568	2,113,489	821,921
1892	1,525,783	2,625,989	1,100,206
1893	1,420,606	2,780,787	1,360,181
1894	1,805,936	2,956,082	1,150,146
1895	2,877,056	3,948,449	1,071,393
1896	5,083,273	5,754,475	671,202
1897	4,588,830	5,978,798	1,389,968
1898	4,037,252	5,420,479	1,383,227
1899	4,196,983	4,986,034	789,051
1900	4,836,886	5,742,012	905,126
1901	4,929,042	5,944,769	1,015,727
1902	5,300,576	6,439,561	1,138,985
1903	5,300,249	6,371,987	1,071,738

It will be seen that the liabilities of the banks, owing principally to increased deposits, were added to so rapidly during the years 1895 and 1896, that in the latter year the total reached was £5,083,273. During the two succeeding years, a shrinkage in the amount of deposits, and also in the note circulation, brought about a decline to £4,037,252 in 1898. From that year onwards to 1902 an increase was experienced, the total for the latter year, viz., £5,300,576, being the largest on record. For 1903 the total liabilities were only £327 less than for 1902. As regards the assets, fluctuations somewhat similar to those in evidence in the liabilities were experienced, but the high and low points are each a year later than in the case of the liabilities, the maximum total being that for 1897, viz., £5,978,798, and the minimum that for 1899, £4,986,034. From 1900 to 1902 a continuous increase was experienced, the assets for the latter year, £6,439,561, being higher than for any previous year. In 1903 a slight fall took place, the total amounting to £6,371,987, which, however, was still higher than that for any year except 1902.

The surplus assets may be taken as representing those portions of the capital and reserves of the several banks which are used in their business in this State, together with the difference between the amount raised elsewhere by the banks for investment here and the amount raised here for investment elsewhere. It may be noted in connection with this matter, that the Bank of Australasia was the only bank whose liabilities in this State for the year 1903 exceeded its Western Australian assets. In the case of the other five banks the assets were in excess.

These surplus assets have fluctuated considerably, varying for the thirteen years under review between a minimum of £671,202 in 1896, and a maximum of £1,389,968 in 1897.

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Note Circulation.

Under the provisions of an Act passed by the Legislature of Western Australia in 1840 (4 Vict., No. 5), no bank notes may be issued for a smaller sum than one pound, nor for any sum involving a fraction of a pound. There are no figures available concerning the numbers of notes for different amounts in circulation, but there is not the least doubt that the one pound note is that most in use.

Under the provisions of "The Stamp Act, 1882," every bank of issue is required to pay quarterly to the Treasury a sum of ten shillings for every £100 of average note circulation during the preceding quarter, being at the rate of two per cent. per annum on the average yearly circulation.

No special reserve against note issue is required by law in this State, nor, indeed, is there any apparent necessity for such a regulation, when it is considered that for 1903 the average note circulation was only £387,920, while the average amount of coin and bullion held by the banks during the year was no less than £2,243,628.

Particulars for the years 1894 to 1903, relative to the amounts of notes in circulation and the corresponding amounts per head of mean population, are as follows :—

Year.	Average Yearly Note Circulation.	
	Amount.	Per Head of Mean Population.
	£	£ s. d.
1894	143,156	1 18 2
1895	214,679	2 7 8
1896	395,092	3 4 5
1897	374,993	2 8 3
1898	330,673	1 19 2
1899	315,189	1 17 5
1900	361,716	2 0 10
1901	378,372	2 0 2
1902	394,011	1 18 4
1903	387,920	1 15 1

The average note circulation of the State attained a maximum in 1896, the amount for that year being £395,092. During each of the three succeeding years a decrease in circulation was experienced, with the result that the amount for 1899 stood as low as £315,189. From 1900 to 1902 a continuous increase was in operation, and the amount for 1902 (£394,011) fell little short of the 1896 record. During 1903, however, the total again declined, the amount for that year being £387,920. The amount per head of mean population has varied considerably during the decennium, the highest (£3 4s. 5d.) being that for 1896, and the lowest (£1 15s. 1d.) for 1903.

It will be seen that during the last four years of the decennium under review, the note circulation per head of population has

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exhibited a continuous fall, the lowest point for the ten years being reached in 1903.

Deposits.

Moneys deposited with the banks are placed either on "current account," and bear no interest, or at "fixed deposit" for a specified term, at a stipulated rate of interest. In the case of current accounts a charge of £1 1s. per annum, payable half-yearly, is made by the banks for each account.

The rates of interest paid during the years 1896 to 1903, on fixed deposits for twelve months, are as follows:—

Year.	Interest per Annum on Sums Deposited for twelve months.
	%
1896	3½
1897	3½
1898	3½ and 3
1899	3
1900	3
1901	3
1902	3
1903	3 and 3½

The rate paid on sums placed on fixed deposits for six months is usually one per cent. per annum below that paid on twelve months' deposits, while no interest is allowed for periods of less than six months. In the case of fixed deposits for two years or upwards, the rate of interest now being paid by the banks is ½ per cent above that allowed on deposits for twelve months, the rates for 1903 ranging from 3½ to 4 %.

The average amounts on deposit with the banks of issue in this State during each of the ten years, 1894 to 1903, are as follows:—

Year.	Average Amount of Deposits.					
	Not bearing Interest.		Bearing Interest.		Total.	
	Amount.	Percentage on Total Deposits.	Amount.	Percentage on Total Deposits.	Amount.	Per Head of Mean Population.
	£	%	£	%	£	£ s. d.
1894 ...	751,430	46·12	877,872	53·88	1,629,302	21 14 2
1895 ...	1,593,372	61·53	996,355	38·47	2,589,727	28 14 7
1896 ...	3,192,348	69·74	1,385,048	30·26	4,577,396	37 6 2
1897 ...	3,096,105	76·08	973,562	23·92	4,069,667	26 3 3
1898 ...	2,576,783	71·55	1,024,393	28·45	3,601,176	21 6 2
1899 ...	2,547,152	66·88	1,261,477	33·12	3,808,629	22 12 0
1900 ...	2,869,480	65·36	1,521,031	34·64	4,390,511	24 15 11
1901 ...	2,980,390	67·17	1,456,373	32·83	4,436,763	23 11 2
1902 ...	3,202,695	66·78	1,593,019	33·22	4,795,714	23 6 2
1903 ...	3,311,939	69·11	1,480,151	30·89	4,792,090	21 13 2

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It will be seen from the above table that the total amount of deposits increased so rapidly during the first three years of the decennium under review that, for the year 1896, it stood at £4,577,396, as compared with £1,629,302 for 1894. During 1897 and 1898, however, a rapid decline was experienced, the total for the latter year reaching only £3,601,176. This was followed by steady increases in each of the four subsequent years, the total attained in 1902 being £4,795,714. In 1903 a slight decline was in evidence, the amount reached being £4,792,090.

Of the total amount on deposit, the proportion placed at interest has fluctuated considerably during the decennium, varying between the limits of 54 per cent. for 1894 and 24 per cent. for 1897. During the four years, 1899 to 1902, the variation was very slight, the interest-bearing deposits being practically one-third of the total on deposit for each of these years. In 1903, however, the deposits at interest represented only about 31 per cent. of the total amount on deposit.

The amount of deposits per head of mean population of the State has also been subject to considerable variation, and has ranged between £21 6s. 2d. for 1898 and £37 6s. 2d. for 1896. In this case, also, the figures for the four years, 1899 to 1902, are remarkably uniform, varying only between £22 12s. and £24 15s. 11d., and averaging for the four years £23 10s. 3d. per head of mean population. For 1903 the amount per head receded to £21 13s. 2d., being lower than that for any year except 1898.

As the form of banking return prescribed by Statute does not require "Government" to be distinguished from other deposits, the proportion of Government deposits contained in the foregoing figures cannot be ascertained. The amount of Government money on deposit with the several local banks at the end of each quarter is, however, published regularly by the Treasury, particulars for the ten years, 1894 to 1903, being as follows:—

Year.	Amount of Government Deposits with Local Banks on—			
	31st March.	30th June.	30th September.	31st December.
	£	£	£	£
1894	417,446	370,909	379,999	343,808
1895	444,223	455,826	551,183	674,065
1896	796,509	1,011,839	1,019,310	546,836
1897	555,144	328,298	345,637	265,115
1898	301,776	438,964	494,215	421,616
1899	477,229	615,384	816,960	936,580
1900	1,036,621	791,168	834,296	680,497
1901	575,605	527,423	574,986	551,875
1902	585,535	471,241	672,147	507,061
1903	448,661	332,224	540,065	389,133

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Coin and Bullion.

Details concerning the amounts of coin and bullion held by the banks of issue in this State during each of the ten years, 1894 to 1903, are as follows, the percentages of such amounts on the total liabilities at "call," that is, on the deposits not bearing interest and the note circulation, being also given:—

Year.	Average Amount of Coin and Bullion held in Western Australia.			
			Total.	
	Coin.	Bullion.	Amount.	Percentage on Liabilities at "Call" (Deposits not bearing Interest and Note Circulation).
	£	£	£	%
1894	636,973	52,418	689,391	77·06
1895	1,200,582	76,894	1,277,476	70·65
1896	2,323,962	90,657	2,414,619	67·31
1897	2,102,831	132,165	2,234,996	64·39
1898	1,631,604	195,640	1,827,244	62·85
1899	1,527,902	238,484	1,766,386	61·71
1900	2,231,438	251,202	2,482,640	76·83
1901	2,056,540	321,515	2,378,055	70·80
1902	2,265,767	506,771	2,772,538	77·09
1903	1,621,037	622,591	2,243,628	60·64

The amount of coin and bullion held by the banks has fluctuated somewhat during the ten years, but has, throughout the period, always represented a high percentage of the liabilities at "call," ranging between 61 per cent. for 1903, and 77 per cent. for 1894, 1900, and 1902. The total amount for 1903 was £2,243,628, while the percentage on "call" liabilities for that year was 61, the lowest for the decennium under review.

Advances.

In addition to a specification of coin and bullion, provision is made in the banking returns for showing the other assets of the bank under five heads, comprising "Government Securities," "Landed Property and Bank Premises," "Notes and Bills of other Banks," "Balances due from other Banks," and "Notes and Bills Discounted and other debts to banks not before enumerated." Of these five groups the last named, which is very generally referred to as "Advances," is by far the most important, representing, for 1903, about 88 per cent. of the assets, exclusive of coin and bullion.

The amount shown under this head consists of the total of bills and promissory notes discounted, advances by way of legal or

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equitable mortgage, or on personal or other security, and other miscellaneous amounts owing to the banks. It is to be regretted that the forms prescribed make no provision for distinguishing the nature of these advances, such as exists with regard to the statements required from Life Assurance Companies, and that, in consequence, much valuable information which should be readily available relative to the trend of banking business in the State is unobtainable. The same objection applies elsewhere; for instance, throughout the several States of Australia and the colony of New Zealand the forms in use are, except for a few minor variations, practically identical with those in force here.

Particulars relative to the amount of advances for the ten years, 1894 to 1903, are as follows:—

Year.	Average Advances in Western Australia.		
	Amount.	Per head of Mean Population.	Percentage on Total Deposits.
	£	£ s. d.	%
1894	2,118,429	28 4 6	130·02
1895	2,385,662	26 9 3	92·12
1896	2,812,547	22 18 5	61·44
1897	3,349,806	21 10 8	82·31
1898	3,206,434	18 19 6	89·04
1899	2,817,465	16 14 4	73·98
1900	2,756,872	15 11 5	62·79
1901	3,061,330	16 5 2	69·00
1902	3,224,106	15 13 5	67·23
1903	3,650,685	16 10 0	76·18

The total advances, which, in 1894, amounted to £2,118,429, increased rapidly during the three succeeding years, and in 1897 reached £3,349,806. For the three following years a continuous decline was experienced, the total for 1900 being only £2,756,872, while for the three remaining years of the decennium, a rapid increase was again in evidence, the total for 1903, viz., £3,650,685, being the highest ever attained.

A remarkable feature of this table is the decline during the ten years shown in the amount of advances per head of mean population of the State, this amount falling from £28 4s. 6d. in 1894 to £16 10s. in 1903—the lowest point reached during the ten years being that attained in 1902, viz., £15 13s. 5d. In the case of the percentage of advances on total deposits, also, the difference between the figures for the earlier and the later years of the decennium is very marked, the percentage having fallen from 130 in 1894 to 76 in 1903.

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The discount rates charged by the banks during each of the eight years, 1896 to 1903, are as follows:—

Year.	Discount Rate on Bills having a Currency of	
	Three months and under.	Over three months.
	%	%
1896	5 to 9	5 to 9
1897	6 to 7½	7 to 8
1898	6 to 8	7 to 8
1899	6 to 8	7 to 8
1900	6 to 7	7 to 9
1901	6 to 7	7 to 9
1902	5 to 7	5 to 9
1903	5 to 8	5 to 9

The following table gives the rates of exchange on drafts issued by the banks on the several States of the Commonwealth, on the Colony of New Zealand, and on London, for each of the five years 1899 to 1903:—

Drafts Drawn.	1899.	1900.	1901.	1902.	1903.
	Premium. %	Premium. %	Premium. %	Premium. %	Premium. %
At sight on—					
New South Wales ...	⅛	⅛	⅛	⅛	⅛
Victoria	⅛	⅛	⅛	⅛	⅛
Queensland	1	1	1	1	1
South Australia ...	⅛	⅛	⅛	⅛	⅛
Tasmania	1	1	1	1	1
New Zealand... ...	1	1	1	1	1
London	1¼ to 2	1⅛ to 1½	1¼	1⅛ to 1¼	1¼ to 1⅜
At 60 days' sight on—					
London	¼ to ⅞	⅝ to ¾	to ⅞	⅝ to ⅞	¾ to 1

Similar particulars relative to the rates of exchange on bills purchased by the banks are as follows:—

Bills Drawn.	1899.	1900.	1901.	1902.	1903.
	Discount. %	Discount. %	Discount. %	Discount. %	Discount. %
At sight on—					
New South Wales ...	⅛	⅛	⅛	⅛	⅛
Victoria	⅛	⅛	⅛	⅛	⅛
Queensland	1	1	1	1	1
South Australia ...	⅛	⅛	⅛	⅛	⅛
Tasmania	1	1	1	1	1
New Zealand... ...	1	1	1	1	1
London	par to ¾	¼ to ¾	½	¼ to ½	¼ to ½
At 60 days' sight on—					
London	⅝ to 1¼	¾ to 1¼	¾	¾	¾

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Capital.

The total paid-up capital of all the banks of issue operating in this State, as furnished in the returns for the quarter ended 31st December in each of the years 1894 to 1903, is as follows:—

Year.	Number of Banks.	Total Paid-up Capital on 31st December.
		£
1894	6	10,449,690
1895	6	10,916,058
1896	6	11,216,439
1897	6	10,154,725
1898	6	10,208,954
1899	6	10,294,011
1900	6	9,915,105
1901	6	9,981,822
1902	6	8,910,302
1903	6	8,910,392

The decreases shown as having taken place in the total paid-up capital during the years 1897, 1900, and 1902 were due to the writing off, by the two re-constructed banks, of a portion of their capital.

(*b.*) Post Office Savings Bank.

The earliest legislation relating to Savings Banks in this State was an Ordinance (18 Vict., No. 3) passed on the 12th April, 1855, "to provide for the encouragement, safe custody, and increase of "small savings in Western Australia." This measure was, however, very short-lived, and remained in force but little more than a year, being repealed by an Ordinance passed on the 9th June, 1856 (19 Vict., No. 9).

In this latter enactment, which consists of one clause only, it is stated that the provisions of the previous Ordinance were "found to be inapplicable to existing circumstances," and that, in consequence, the whole of that Ordinance was repealed, "save and except so far as the same relates to the repayment of any moneys deposited and still being in the hands of the Colonial Treasurer, together with interest thereon."

Seven years after this the attempt to encourage small savings was again made by the legislature, when "The Post Office Savings Bank Ordinance" (27 Vict., No. 5) was passed on 1st July, 1863. Under this Ordinance the Post Office Savings Bank was established, and provision was made that interest at the rate of 3¾ per cent. per annum should be paid on deposits, such interest to be computed on the minimum monthly balance of each account, exclusive of fractions of a pound, and to be added to the depositors' accounts on

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31st December in each year. No mention was made of the maximum amount to be allowed on deposit, but, in the following year, on 11th July, 1864, an amending Ordinance (28 Vict., No. 1) was passed, which provided, amongst other things, that no depositor should be allowed to increase the amount standing to his credit with the bank by more than £30 in any one year, nor to more than £150 in all, and also that whenever, by the annual addition of interest, the sum standing in the name of any depositor should amount to £200 in all, no further interest would be allowed so long as the total remained as high as £200.

Additional amending enactments were passed in 1865 (29 Vict., No. 13) and in 1874 (38 Vict., No. 10), both of which related to the manner of investing the funds of the Bank.

These four measures were repealed by "The Post Office Savings Bank Consolidation Act, 1893" (57 Vict., No. 3), which consolidated and amended the law on the subject, and which was itself amended by Acts passed in 1895 (59 Vict., No. 5), in 1896 (60 Vict., No.15), in 1900 (64 Vict., No. 10), and in 1902 (2 Edw. VII., No. 22).

Under the provisions of these Acts deposits may be made to the amount of one shilling and upwards, provided that the addition to a depositor's principal does not exceed £150 during the course of any one year, and the total amount at the depositor's credit does not at any time exceed £600.

The rate of interest payable to depositors which, in the Act of 1863, and also in that of 1893, is laid down at 3¾ per cent., remained at that figure until 1896, when the Colonial Treasurer, in accordance with power given him by the Amending Act of 1895, notified through the *Government Gazette* that on and after 1st July, 1896, the rate of interest would be 3 per cent. This rate continued in force until 30th June, 1904, when it was raised to 3½ per cent.; it was, however, on 31st December, 1904, again reduced to 3 per cent. Interest is still computed on the minimum monthly balance exclusive of fractions of a pound, and is added to deposits annually on 30th June, but in the event of any account exceeding £300, no interest is allowed on such excess.

On the 1st March, 1901, the Postal Departments of the several States were taken over by the Commonwealth Government, and, in anticipation of this, the Savings Bank Amending Act of 1900 was passed by the Western Australian Legislature, to make such alterations in the principal Act of 1893 as would be rendered necessary by the transfer, the Colonial Treasurer being authorised therein to make, with the approval of the Governor, arrangements "with the postal authorities of the Commonwealth, that the officers of the Post Office shall perform, on such terms as shall be agreed upon, all or

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any part of the duties which have hitherto been performed by such officers in connection with the Post Office Savings Bank."

Such arrangements having been duly made, the business of the agencies of the Bank is now carried on much as it was before the Commonwealth assumed control of the Postal Department. The Head Office of the Bank, however, which is situated in Perth, is quite distinct from the Postal Department, as are also the agencies at Boulder, Coolgardie, Fremantle, Geraldton, and Kalgoorlie, all the officers being members of the State Public Service. All the accounts are kept at the Head Office, the branch business merely consisting in the transmission to the Head Office of money deposited and the payment of withdrawals on the receipt from the Head Office of the necessary funds. The privilege of withdrawing by telegraph has been extended to all the branches throughout the State.

Agencies are now established (31st October, 1904) at the undermentioned places:—

Aberdeen Street, Perth	Fremantle, South	Nannine
Albany	Geraldton	Narrogin
Armadale	Gingin	Newcastle
Beverley	Goongarrie	Niagara
Bonnie Vale	Grass Valley	Norseman
Boulder	Greenbushes	Northam
Bridgetown	Greenough	Northampton
Brisbane Street, Perth	Guildford	Nullagine
Broad Arrow	Harvey	Onslow
Broome	Jarrahdale	Paddington
Broome Hill	Kalgoorlie	Peak Hill
Brown Hill	Kanowna	Perth, South
Bulong	Karridale	Pingelly
Bunbury	Katanning	Pinjarra
Burbanks	Kookynie	Port Hedland
Busselton	Kunanalling	Princess Royal
Carnarvon	Lake Austin	Ravensthorpe
Chidlow's Well	Laverton	Roebourne
Claremont	Lawlers	Smith's Mill
Collie	Leederville	Southern Cross
Coolgardie	Lennonville	Subiaco
Cossack	Leonora	Trafalgar
Cottesloe	Magnet	Wagin
Cue	Malcolm	Waroona
Davyhurst	Marble Bar	Williams
Day Dawn	Meckering	Wiluna
Denmark	Menzies	Worsley
Derby	Midland Junction	Wyndham
Dongara	Mingenew	Yalgoo
Donnybrook	Morgans	Yarloop
Esperance	Mornington	York
Fremantle	Moora	Yundamindera.
Fremantle, East	Mt. Barker	
Fremantle, North	Mundaring	

In the following table are given particulars relative to the number of accounts and the amounts due to depositors from 1863,

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the year in which the bank was inaugurated, up to 30th June, 1904:—

Date.	Number of Accounts remaining open.	Amount due to Depositors.	Average Amount standing to Credit of each Account.			Average Amount per head of Population of Western Australia.			Number of Accounts per 1,000 of Population.
	No.	£	£	s.	d.	£	s.	d.	No.
31st December, 1863	224	2,486	11	2	0	0	2	8	12
Do. 1864	633	6,391	10	1	11	0	6	7	33
Do. 1865	965	9,888	10	4	11	0	9	9	48
Do. 1870	895	13,582	15	3	6	0	10	10	36
Do. 1875	1,408	23,885	16	19	3	0	17	11	53
Do. 1880	1,299	22,724	17	9	10	0	15	8	45
Do. 1885	2,082	26,148	12	11	2	0	14	10	59
Do. 1890	3,014	34,616	11	9	8	0	14	11	65
30th June, 1895	8,374	221,816	26	9	9	2	3	10	83
Do. 1896	16,160	460,611	28	10	1	3	6	10	117
Do. 1897	26,317	856,084	32	10	7	5	5	11	163
Do. 1898	29,791	1,072,058	35	19	9	6	7	9	178
Do. 1899	29,371	1,116,178	38	0	1	6	10	10	172
Do. 1900	33,646	1,299,144	38	12	3	7	4	7	187
Do. 1901	39,318	1,618,359	41	2	9	8	6	9	203
Do. 1902	45,108	1,889,082	41	17	7	8	17	1	211
Do. 1903	48,008	1,988,624	41	8	5	8	19	2	216
Do. 1904	54,873	2,079,763	37	18	0	8	14	9	231

The increase in the business of the bank, whether considered from the point of view of the number of accounts or of the amount due to depositors, has, during the nine years, from 30th June, 1895, to 30th June, 1904, been phenomenal. During that period the number of accounts increased considerably more than sixfold, while the increase in the amount of deposits for the same time was more than ninefold.

In the earlier years of the Bank the amounts on deposit were small, ranging, on the average, from £10 to £17; and it was not until the year 1893 that so high an average as £20 was attained. In later years, however, the accounts have increased in magnitude, and for the years 1900-1, 1901-2, and 1902-3 they averaged more than £40, but fell to about £38 for 1903-4.

A feature of considerable interest in this matter is the manner in which the ratio of accounts to population has increased. Although the number of accounts probably exceeds the number of depositors, owing to trust accounts for friendly societies and for other purposes being allowed by the Savings Bank legislation, the excess would presumably not be large, and it may consequently be stated that, whereas in 1895 one person in every twelve in Western Australia was a Savings Bank depositor, in the four years 1900-1 to 1903-4 one person in every five had an account with the bank.

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The average amount of Savings Bank deposits per head of population of the State, has increased from 2s. 8d. at the end of 1863, the Bank's first year of business, to £8 14s. 9d. on 30th June, 1904. In this case, also, the greatest increase has been that experienced in recent years, as the amount of deposits per head of population did not reach £1 until 1892.

While the increase in the amount due to depositors has, during the past ten years, been large, the magnitude of the bank's business cannot be gauged by this alone, as such increase represents only the net results of extensive deposits and withdrawals, together with the interest added to the accounts from time to time. Particulars relative to the amounts deposited and withdrawn, the interest allotted, and the cost of management, from 1893-4 to 1903-4, are as follows:—

Year.	Number of Offices.	Amount Deposited.	Amount Withdrawn.	Excess of Deposits over Withdrawals.	Interest Allotted.	Total additions to Amount due to Depositors.	Cost of Management.
	No.	£	£	£	£	£	£
1893–4	24	146,387	83,509	62,878	3,516	66,394	2,644
1894–5	24	217,930	143,679	74,251	6,245	80,496	
1895–6	31	520,016	291,744	228,272	10,523	238,795	2,820
1896–7	38	1,068,322	690,183	378,139	17,334	395,473	4,224
1897–8	55	1,231,638	1,042,521	189,117	26,857	215,974	7,064
1898–9	59	1,057,023	1,042,751	14,272	29,848	44,120	6,572
1899–1900	67	1,112,251	962,371	149,880	33,086	182,966	6,544
1900–1	69	1,333,376	1,053,938	279,438	39,777	319,215	6,751
1901–2	76	1,534,010	1,311,347	222,663	48,060	270,723	4,283
1902–3	81	1,605,148	1,559,649	45,499	54,043	99,542	5,540
1903–4	96	1,631,687	1,596,110	35,577	55,562	91,139	8,954

The following is a statement of the liabilities and assets of the bank on the 30th June in each of the years 1903 and 1904:—

Particulars.	30th June, 1903.	30th June, 1904.
LIABILITIES.	£	
Balance due to Depositors	1,983,256	2,079,763
At Credit of Profit and Loss Account... ...	7,607	7,911
Total	1,990,863	2,087,674
ASSETS.		
Mortgages on Freehold	93,372	90,900
Municipal Debentures	33,800	57,800
Government Securities	1,168,510	1,353,805
Advances to Metropolitan Waterworks Board	407,521	407,521
Cash in W.A. Bank	276,214	162,367
Cash in hand	11,446	15,281
Total	1,990,863	2,087,674

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In addition to the amount shown above as due to depositors on 30th June, 1903, a sum of £5,368 had been received by the Savings Bank prior to the close of the year 1902-3, but was not paid into the Treasury until after the commencement of the year 1903-4.

The Profit and Loss Accounts for the years ended 30th June, 1903 and 1904, are as follows :—

Particulars.	30th June, 1903.	30th June, 1904.
Dr.	£	£
Departmental Expenses...	5,540	8,954
Interest allotted to Depositors...	54,043	55,562
Transferred to Revenue	...	7,607
Balance	7,607	7,911
Total	67,190	80,034
Cr.		
Balance from previous year	2,566	7,607
Interest on mortgages	58,012	67,590
Interest on balance with W.A. Bank	6,561	4,754
Other Receipts	51	83
Total	67,190	80,034

(c.) Agricultural Bank.

On the 23rd November, 1894, an Act authorising the establishment of an Agricultural Bank was assented to, the preamble to the Act stating that "it is considered advisable to establish a Bank for the purpose of promoting the occupation, cultivation, and improvement of the agricultural lands of the colony."

From time to time the scope of the Bank has been extended, amending Acts having been passed for this purpose in 1896 (60 Vict., No. 5), in 1899 (63 Vict., No. 25), in 1902 (2 Edw. VII., No. 13), and in 1904 (No. 11 and No. 49).

Provision is made for raising the necessary funds by the issue of mortgage bonds having a currency not exceeding 20 years, and bearing interest at a rate not exceeding 5 per cent. per annum, such bonds to be redeemed by annual drawings commencing after the expiration of six years from the date of issue. Under the principal Act of 1894 the total amount which the Bank was authorised to raise by the issue of mortgage bonds was fixed at £100,000, but this, under the Act of 1899, was increased to £200,000, under No. 11 of 1904, to £400,000, and under No. 49 of 1904, further increased to £500,000.

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The advances are made to farmers or other cultivators of the soil on the security of holdings—(1.) in fee simple, (2.) under Special Occupation Lease, (3.) on Conditional Purchase from the Crown, or (4.) as Homestead Farms.

Under the principal Act advances could be obtained from the Bank only for the purpose of effecting improvements on holdings, the amount so obtainable being limited to one-half of the value of such improvements, while the total advance to any one person was not to exceed £400. By the Amendment Act of 1896, advances to the amount of three-fourths of the value of the improvements to be effected were allowed, the maximum advance to any one person being also increased to £800.

The 1902 Act contains a provision for advances to be made on the security of improved holdings for the purpose of paying off liabilities already existing; of carrying on farming, grazing, agricultural, horticultural, and viticultural pursuits, or of adding to improvements already made. The largest amount that may be obtained under this Act on horticultural and viticultural lands is one-half of the value of land and improvements, and on other improved lands two-thirds of the value, while the maximum advance to any one person is £1,000. It is also stipulated that not less than one-third of the advance shall be expended on the land on improvements.

The security required in the case of land held in fee simple is a first mortgage, and in the case of other holdings, a transfer of the lease or other document of title.

The rate of interest charged by the Bank is 5 per cent. per annum on the amount outstanding, while repayments commence five years from the date of the advance, and continue at the rate of one-fiftieth of the principal sum half-yearly, until the whole has been repaid, the borrower being allowed, if he so desires, to effect his repayments in larger instalments.

The total amount of the Bank's advances on 30th June in each of the years 1896 to 1904 was as follows:—

Date.	Total amount advanced to date.
	£
30th June, 1896	22,300
Do. 1897	37,423
Do. 1898	61,724
Do. 1899	80,322
Do. 1900	91,701
Do. 1901	99,963
Do. 1902	113,506
Do. 1903	136,667
Do. 1904	215,000

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The following table shows the nature, extent, and cost of the improvements effected up to 30th June, 1904, on the properties which the Bank held as security for its advances:—

Nature of Improvement.	Extent.	Cost.
		£
Clearing	110,281 acres	243,870
Cultivating	76,493 ,,	60,454
Ringbarking	97,273 ,,	10,787
Fencing	51,919 chains	17,265
Drainage Works	...	1,675
Wells, Dams, Reservoirs, etc.	...	9,861
Farm Buildings	...	33,168
Total	...	377,080

In addition to the assistance rendered in connection with the foregoing improvements, the sum of £229,122 was advanced for the following purposes:—

	£
To pay off liabilities	12,005
To purchase stock	12,192
To purchase plant, etc.	3,201
To purchase fertilisers, etc.	1,724
	£29,122

The Bank's Profit and Loss account for the year ended 30th June, 1904, is as follows:—

Dr.	£	Cr.	£
Balance transferred to Redemption a/c	615	Balance brought forward ...	615
Interest on Mortgage Bonds	5,616	Interest on Loans	7,786
Salaries	1,492	,, Redemption a/c.	533
Incidental Expenses ...	468	Application fees	1,293
Balance	2,036		
	£10,227		£10,227

For further particulars relative to the Bank and its methods of operation, reference should be made to Part VII., dealing with Land.

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(*d.*) Insurance.

I.—*Life Assurance.*

The only Act dealing specially with Life Assurance which appears on the Statute Book of Western Australia is "The Life Assurance Companies Act, 1889" (53 Vict., No. 12). This Act was assented to on the 4th December, 1889, and is, to a large extent, based upon the Imperial Acts known as "The Life Assurance Companies Acts, 1870 to 1872"; in fact, it may be said to consist of these Acts, with a few amendments necessary to meet local conditions, and a few additions.

The returns to be furnished to the Registrar of Companies by the Life Assurance Companies transacting business in this State are provided for in the schedules to the Act, and these, with the exception of the fifth, which is a new one, are almost identical with the schedules to the Imperial Acts mentioned; the principal difference being that under the local Act the assets held by each Company must be separated, so as to show under each of the heads specified in the second and fourth schedules the assets held in Western Australia and elsewhere.

Minor points of difference occur in the first schedule, where the item which appears as "Commission" in the Imperial Act is required by the local Act to be separated, so as to show Commission on New Premiums and Renewals; and in the sixth schedule, where an additional query as to the table of mortality and rate of interest, according to which the net premiums valued have been computed, is inserted in the local Act.

The returns thus differ but little, with the exception of those required under the fifth schedule, from the returns under the Imperial Acts; and in the case of the sixth and seventh schedules it is provided in Section 21 that a copy of the corresponding returns deposited in accordance with the provisions of the Imperial Act with the Board of Trade may be deposited at the office of the Registrar in lieu of those prescribed.

The rules for valuing Annuities and Policies in the case of a Company being wound up, which appear in the first schedule of the Imperial "Life Assurance Companies Act, 1872," are retained as the eighth schedule to the local Act, and the second schedule to the Imperial Act mentioned is incorporated in the body of the local Act as Section 58.

Every Company commencing or carrying on the business of life assurance in Western Australia is by this Act required to deposit with the Colonial Treasurer approved securities to the value of £10,000; a proviso being made, however, that in the case of any local Company the amount required to be deposited should not exceed 50 per cent. of the amount of premiums actually received by the Company.

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There are at present nine Life Assurance Companies carrying on business in this State, of which three—The Australian Mutual Provident Society, the Mutual Life Association of Australasia, and the Citizens' Life Assurance Company, Limited—have their head offices in Sydney; three others—the Colonial Mutual Life Assurance Society, Limited, the National Mutual Life Association of Australasia, and the Australasian Temperance and General Mutual Life Assurance Society, Limited—have their head offices in Melbourne; while the remaining three—the Equitable Life Assurance Society of the United States, the Mutual Life Insurance Company of New York, and the Independent Order of Foresters—are American Companies, the first two having their head offices in the United States, and the last in Canada.

The Citizens' Life Assurance Company, Limited, undertakes Industrial as well as Ordinary Assurance, and until recently was the only Company in Western Australia carrying on this class of business, the distinctive features of which are that the sums assured are small, and the premiums payable at short intervals, usually weekly. During the year 1904, however, the Australasian Temperance and General Society commenced an Industrial-Ordinary business in this State, and the recent decision on the part of the A.M.P. Society to undertake Industrial Assurance in addition to its Ordinary business will add yet another to the list.

The following is a summary of the total Liabilities and Assets of the several Assurance Companies on 31st December, 1903, compiled from particulars furnished in accordance with the second schedule of "The Life Assurance Companies Act, 1889":—

Liabilities.

Name of Company.	Assurance and Annuity Funds.	Other Liabilities.	Total Liabilities.
	£	£	£
Australian Mutual Provident Society ...	19,140,985	999,940	20,140,925
Citizens' Life Assurance Company, Ltd. { Ordinary ...	774,578	4,006	778,584
Citizens' Life Assurance Company, Ltd. { Industrial ...	350,682	23,488	374,170
Colonial Mutual Life Assurance Society, Ltd.	2,735,082	87,580	2,822,662
Equitable Life Assurance Society of the U.S.	77,859,301	482,649	78,341,950
Independent Order of Foresters ...	1,448,006	69,133	1,517,139
Mutual Life Association of Australasia...	1,768,599	14,074	1,782,673
Mutual Life Assurance Company of New York	81,981,492	535,065	82,516,557
National Mutual Life Association of Australasia, Ltd.*	3,674,436	145,446	3,819,882

* Liabilities on 30th September, 1903.

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Assets.

Name of Company.	Assets in Western Australia.	Assets elsewhere.	Total
	£	£	£
Australian Mutual Provident Society ...	1,241,492	18,899,433	20,140,925
Citizens' Life Assurance Company, Ltd. { Ordinary ...	53,890	724,694	778,584
Citizens' Life Assurance Company, Ltd. { Industrial ...	2,508	371,662	374,170
Colonial Mutual Life Assurance Society, Ltd.	50,706	2,771,956	2,822,662
Equitable Life Assurance Society of the U.S.	32,161	78,309,789	78,341,950
Independent Order of Foresters ...	10,000	1,507,139	1,517,139
Mutual Life Association of Australasia...	28,030	1,754,643	1,782,673
Mutual Life Insurance Company of New York	14,964	82,501,593	82,516,557
National Mutual Life Association of Australasia, Ltd.*	182,190	3,637,692	3,819,882

* Assets on 30th September, 1903.

Particulars relative to the manner in which the Assets in Western Australia were held on 31st December in each of the years 1901 to 1903, are furnished in the following table:—

Particulars.	Assets in Western Australia.		
	31st December, 1901.	31st December, 1902.	31st December, 1903.
	£	£	£
West Australian Government Securities	547,258	558,565	567,146
Mortgages	491,491	536,154	576,328
Loans on Company's Policies	175,940	198,465	223,678
Loans on Personal Security ...	4,467	6,114	7,956
Debentures and Debenture Stocks	114,222	137,295	142,273
House Property	33,752	33,853	34,042
Cash—In Hand, on Deposit, and on Current Account	53,787	37,438	31,852
Other Assets	27,284	29,327	32,666
Total	1,448,201	1,537,211	1,615,941

It will be seen that during the two years from 31st December, 1901, to 31st December, 1903, the Western Australian Assets of the Life Assurance Companies increased by £167,740, the principal contributing items being "Mortgages," which increased by £84,837, "Loans on Company's Policies" by £47,738, and "Debentures" by £28,051.

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The Companies operating in this State are required by the Act to furnish annual returns of Revenue and Expenditure, classified in accordance with the form provided in the first schedule. These returns for the year ended 31st December, 1903, have been summarised in the following statement:—

Revenue.

Name of Company.	Premiums new and renewal, less reassurance premiums.	Consideration for Annuities granted.	Other Receipts.	Total.
	£	£	£	£
Australian Mutual Provident Society	1,696,610	31,685	870,514	2,598,809
Citizens' Life Assurance Co., Ltd. { Ordinary	186,037	1,752	29,271	217,060
Citizens' Life Assurance Co., Ltd. { Industrial	177,715	...	14,776	192,491
Colonial Mutual Life Assurance Society, Ltd.	328,894	...	109,931	438,825
Equitable Life Assurance Society of the United States	11,921,747	284,093	3,069,371	15,275,211
Independent Order of Foresters ...	572,530	...	62,625	635,155
Mutual Life Association of Australasia	215,717	32,471	74,141	322,329
Mutual Life Insurance Company of New York	11,618.074	829,897	3,453,460	15,901,431
National Mutual Life Association of Australasia, Ltd.*	447,339	11,127	171,605	630,071

* Year ended 30th September, 1903.

Expenditure.

Name of Company.	Claims under Policies, less sums reassured.	Surrenders.	Annuities.	All other Expenditure.	Total.
	£	£	£	£	£
A.M.P. Society	1,020,771	322,766	42,270	317,692	1,703,499
Citizens' { Ordinary ...	21,950	15,350	1,305	30,633	69,238
Citizens' { Industrial ...	43,431	10,112	...	103,860	157,403
Colonial Mutual ...	209,879	24,132	1,169	95,679	330,859
Equitable of United States	4,251,576	1,527,711	178,791	4,761,516	10,719,594
I.O.F.	351,066	...	...	32,815	383,881
Mutual of Australasia	106,735	11,937	6,524	67,472	192,668
Mutual of New York ...	4,916,888	813,770	439,768	5,838,798	12,009,224
National Mutual* ...	237,349	59,298	7,190	112,269	416,106

* Year ended 30th September, 1903.

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Under Section 18 of the Act, returns relating to new business, discontinuances, and existing policies are required to be furnished annually by the Companies in the form provided in the fifth schedule. In each case particulars of each of the three classes of business—Assurance, Endowment, and Annuity—are required. The new policies issued must further be divided so as to show separately those issued in Western Australia and elsewhere; the discontinuances so as to show those discontinued "by death or maturity," "by surrender," and "by forfeiture"; and the existing policies so as to show the existing business in each of the Australian States, the Colony of New Zealand, and elsewhere.

In the following table are shown the particulars of the new policies issued in Western Australia during 1903 by each of the Companies:—

Name of Company.	Year in which Branch was established in Western Australia.	New Policies issued in Western Australia during 1903.					
		Assurances.		Endowments.		Annuities.	
		No. of Policies.	Sum Assured.	No. of Policies.	Sum Assured.	No. of Policies.	Annuity per Annum.
A.M.P. Society ...	1884	1,104	357,500	3	500	...	..
Citizens' Ordinary	1890	327	72,500	69	6,500	...	...
Citizens' Industrial	1890	1,729	47,575	...	...	...	...
Colonial Mutual ...	1874	133	31,337	10	1,100	...	...
Equitable of U.S. ...	1885	433	227,910	7	1,050	...	...
I.O.F.	1901	31	5,600	...	...	...	...
Mutual of Aust'lasia	1896	98	32,766	16	4,750	...	...
Mutual of N.Y. ...	1896	185	84,105	2	750	...	...
National Mutual* ...	1888	320	91,450	37	4,150	...	...
Total ...	...	4,360	950,743	144	18,800	...	...

* Year ended 30th September, 1903.

It will be seen that of the 4,360 new Assurance policies issued in this State during 1903, 1,729 (or 40 per cent.) were industrial, the sum assured thereby being £47,575, or five per cent. of the total sum assured by the new assurance policies. No Industrial Endowment or Annuity business was done during the year.

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Particulars concerning the amount of new business (exclusive of Industrial) done in Western Australia, during each of the seven years 1897 to 1903, are as follows:—

Year.	New Policies issued in Western Australia (exclusive of Industrial).					
	Assurances.		Endowments.		Annuities.	
	No. of Policies.	Sum Assured.	No. of Policies.	Sum Assured.	No. of Policies.	Annuity per Annum.
	No.	£	No.	£	No.	£
1897 ...	1,512	559,980	70	9,050	1	4
1898 ...	1,707	582,336	107	14,250	...	...
1899 ...	1,600	504,494	158	14,150	...	...
1900 ...	1,751	580,044	110	12,025	2	220
1901 ...	1,840	602,582	126	19,025	4	289
1902 ...	2,307	806,558	117	16,720	1	100
1903 ...	2,631	903,168	144	18,800	...	...

Corresponding particulars relative to new Industrial policies issued in this State during the seven years are as follows:—

Year.	New Industrial Policies in Western Australia.			
	Assurances.		Endowments.	
	No. of Policies.	Sum Assured.	No. of Policies.	Sum Assured.
	No.	£	No.	£
1897	1,075	57,700	938	27,868
1898	1,338	45,009	156	4,480
1899	1,597	49,282	...	...
1900	2,672	71,662	...	...
1901	2,285	63,031	...	...
1902	2,170	62,041	...	...
1903	1,729	47,575	...	...

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The number and amount of policies on the Western Australian registers of the several companies on 31st December, 1903, are given in the following table:—

Name of Company.	Policies existing in Western Australia on 31st December, 1903.					
	Assurances.		Endowments.		Annuities.	
	No. of Policies.	Sum Assured.	No. of Policies.	Sum Assured.	No. of Policies.	Annuity per Annum.
		£		£		£
A.M.P. Society ...	7,557	2,471,533	38	4,850	2	173
Citizens' Ordinary	1,878	353,414	399	37,550	...	...
Citizens' Industrial	9,314	249,987	509	13,774	...	...
Colonial Mutual ...	887	221,747	31	4,700	...	...
Equitable of U.S.A.	1,528	731,942	14	1,850	1	100
I.O.F.	182	44,000	...	...	...	...
Mutual of Aus'lasia	636	215,855	44	8,800	...	...
Mutual of New York	573	239,780	11	1,650	...	...
National Mutual *	2,230	562,831	190	24,671	...	...
Total ...	24,785	5,091,089	1,236	97,845	3	273

* 30th September, 1903.

Of the total of 24,785 Assurance policies existing in Western Australia, no fewer than 9,314, or about 37½ per cent. were Industrial, the amount assured by them being £249,987, or about 5 per cent. of the total sum assured. In the case of Endowment policies, 509 out of a total of 1,236, or 41 per cent., were Industrial, and assured £13,774, or about 14 per cent. of the total amount covered by Endowment policies.

It may be advisable to point out that the Endowments shown in this and other tables in this chapter are pure Endowments, assuring the payment of a sum on the attainment of a given age. Endowment Assurances which provide for payment of the sum assured at a given age or previous death are included under the head of Assurances. In view of the enormous world-wide extension that has been taking place in this latter form of business within recent times, it would be of interest to analyse the particulars for this State so as to show separately the number and amount of policies for "Whole Life Assurances," "Endowment Assurances," and "Other Assurances"; but, unfortunately, the returns furnished in accordance with the Act do not supply the requisite information. The alterations which would be required in the existing schedules in order to obtain this information would not be very extensive, and would simply consist in providing space for the three special heads mentioned above, in place of the general head "Assurances" at present used. The information required would,

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presumably, be readily available in the books of all Life Assurance Companies.

In the following table are given the number and amount of policies (exclusive of Industrial) in existence in Western Australia on 31st December of each of the seven years, 1897 to 1903:—

Date.	Policies (exclusive of Industrial) existing in Western Australia.					
	Assurances.		Endowments.		Annuities.	
	Number of Policies.	Sum Assured.	Number of Policies.	Sum Assured.	Number of Policies.	Annuity per Annum.
	No.	£	No.	£	No.	£
31st December, 1897	7,859	2,598,182	307	34,550	2	125
" 1898	9,026	2,925,506	384	44,650	1	121
" 1899	9,814	3,107,020	476	49,925	1	121
" 1900	10,830	3,402,455	518	55,775	3	341
" 1901	12,085	3,749,843	587	66,150	5	409
" 1902	13,638	4,263,377	633	73,220	3	273
" 1903	15,471	4,841,102	727	84,071	3	273

Similar particulars relative to the number and amount of Industrial policies for the seven years are as follows:—

Date.	Industrial Policies existing in Western Australia.			
	Assurances.		Endowments.	
	Number of Policies.	Sum Assured.	Number of Policies.	Sum Assured.
	No.	£	No.	£
31st December, 1897	4,765	152,189	1,079	29,078
" 1898	5,152	155,555	797	21,073
" 1899	5,630	165,286	638	17,802
" 1900	7,175	202,417	599	17,141
" 1901	8,028	222,293	542	15,274
" 1902	8,955	246,197	530	14,955
" 1903	9,314	249,887	509	13,774

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In the following table are given details for this State concerning the amount assured per policy under Assurance and Endowment policies combined, the amount assured per head of population, and the number of policies per 1,000 of population, on 31st December in each of the seven years, 1897 to 1903, Ordinary and Industrial business being shown separately:—

Date.	Assurance and Endowment Policies existing in Western Australia.					
	Ordinary.			Industrial.		
	Amount Assured per Policy.	Amount Assured per Head of Population.	Number of Policies per 1,000 of Population.	Amount Assured per Policy.	Amount Assured per Head of Population.	Number of Policies per 1,000 of Population.
	£	£ s. d.	No.	£	£ s. d.	No.
31st Dec., 1897	322	16 5 0	51	31	1 2 5	36
Do. 1898	316	17 14 0	56	30	1 1 1	35
Do. 1899	307	18 10 0	60	29	1 1 5	37
Do. 1900	305	19 4 10	63	28	1 4 5	43
Do. 1901	302	19 13 2	65	28	1 4 6	44
Do. 1902	304	20 6 7	67	28	1 4 6	44
Do. 1903	304	21 14 0	71	27	1 3 3	43

It will be seen that the amount of assurance per head, and the number of policies per 1,000 of population have, in the case of the ordinary business in this State, increased considerably during the period under review, the former advancing from £16 5s. in 1897 to £21 14s. in 1903, and the latter from 51 to 71 during the same period.

In the industrial business the amount assured per head of population increased from £1 2s. 5d. in 1897 to £1 4s. 6d. in 1901 and 1902, but fell to £1 3s. 3d. in 1903. Similarly the number of policies per 1,000 of population increased from 36 in 1897 to 44 in 1901 and 1902, and fell to 43 in 1903.

The average amount assured per policy has, during the period, exhibited a tendency to decline, the average in the case of ordinary business falling from £322 to £304 during the six years, from 31st December, 1897, to 31st December, 1903, while the average per industrial policy has correspondingly declined from £31 to £27.

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It is, of course, impossible to tell from the returns how many policy-holders are represented by the number of policies shown, since in some instances one person may be the holder of two or more policies. Assuming, however, that the number of such cases is not proportionately large, it appears that, approximately, in 1903, one person in every 14 of the population was the holder of an ordinary policy, while one in every 23 was an industrial policy-holder.

It may be mentioned that, when in the foregoing pages reference has been made to the totals for the State for the year ended 31st December, the figures given include in each case particulars relative to the National Mutual Life Association for the year ended 30th September, that being the date on which this Company's financial year closes.

II.—*Fire Insurance.*

The following British, Colonial, and Foreign Fire Insurance Companies are represented in Western Australia:—

British.	Colonial.
Alliance	Australian Alliance
Atlas	City Mutual
Caledonian	Colonial Mutual
Commercial Union	National of New Zealand
General Accident	New Zealand
Guardian	North Queensland
Lancashire	South British of New Zealand
Liverpool & London & Globe	United
London & Lancashire	Victoria.
London Assurance	
Manchester	
North British & Mercantile	
Northern	
Norwich Union	
Palatine	
Patriotic	
Phœnix	
Royal	**Foreign.**
Royal Exchange	Aachen & Munich.
Scottish Union & National	
State	
Sun	
Union	
Yorkshire.	

All these Companies have their Head Offices for the State in Perth, with the exception of three, viz., the Australian Alliance, the London Assurance, and the State, which are located at Fremantle.

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III.—*Marine Insurance.*

The following is a list of the Marine Insurance Companies which are doing business in this State:—

Name of Company.	Address of Representative.
Alliance	Fremantle
Australian Alliance	Do.
China Traders	Perth
Commercial Union	Do.
Colonial Mutual	Do.
Canton	Fremantle
National Insurance Co. of New Zealand	Perth
New Zealand	Do.
Nord Deutsche	Fremantle
North Queensland	Perth
South British	Do.
Triton	Fremantle
Union Insurance Company of Canton...	Do.
Union Marine	Perth
United Insurance Company	Do.
Victoria	Do.
World Marine	Fremantle

IV.—*Accident Insurance.*

The Accident Insurance Companies represented in this State are as follows:—

Colonial Mutual.	New Zealand Accident.
Commercial Union.	Ocean Accident.

The offices of the representatives of these Companies are all situated in Perth.

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PART VII.—LAND.

1.—LAND SETTLEMENT.

(Information supplied by the Lands Department.)

GENERAL.

Opportunities for Settlement.

Western Australia offers great advantages as a field for the industrious settler. Her territory is enormous; the rainfall is plentiful and regular; droughts are almost unknown. Climate and country are suitable to nearly every kind of culture, so that every product of the temperate and tropical zones can find somewhere a congenial soil. Stock-keeping is profitable. There is a home market for every kind of crop and stock, consequently the local prices are better than can be obtained elsewhere. The land laws are very liberal. A free farm of 160 acres can be obtained by every new selector, and larger grants can, if required, be had for 10s. per acre, payable in 20 years, without interest. The choice of country offered to the selector is of wide range, and consequently offers every kind of capability, so that the orchardist, wheat-grower, vigneron, stock-producer, dairyman, and market gardener are each readily able to find a location having the requisite natural conditions for their special pursuit.

The Agricultural Bank, on behalf of the State, conditionally lends money cheaply to settlers, on long terms of easy repayment by instalments. Railways intersect the agricultural districts, and are fed and supplemented by good roads. The Treasury devotes annually a large sum to the making of new roads, and in every direction the Government is actively fostering the development of the land. The pipes of the Goldfields Water Supply, between Mundaring Weir and Kalgoorlie, pass through the Eastern agricultural districts, and settlers, at small cost, may tap them and avail themselves of this advantage. For the benefit of settlers, agricultural halls, post and telegraph facilities, and schools are widely distributed, and children are carried by train to school free of charge. The rich flats in the Harvey District, to the South of Perth, have been drained at the public expense, the canals serving the double purpose of drains in winter and irrigation channels in summer. Experimental farms have been

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established for the raising and distribution of the seed of early maturing wheats and other special seeds, also of stud stock. Students are trained in agricultural colleges connected with these farms. The Department of Agriculture places its expert staff at the service of the public, when so desired, including the help of the Analytical Chemist, who, if applied to, will instruct the cultivator as to the composition of his soil and the kind of fertiliser which will produce the best result. Moreover, the Entymologist of the department, acting in co-operation with the Department of Agriculture, California, U.S.A., has been sent on a world-wide search for insect parasites, especially those which are the natural enemy of the "fruit fly" (*ceratitis capitata*). The question of cheapening the transport of produce by means of light agricultural railways or tramways, or by running agricultural motor wagons, is also receiving attention. In a word, land settlement is at present the national policy of Western Australia, and in inviting settlers to cast in their lot there she is able to make the invitation well worthy of their acceptance.

Special Inducements.—Amongst the special inducements offered are: First, the free gift already mentioned of 160 acres, with, if desired, the opportunity of taking up further land under the improvement conditions, at the rate of 10s. per acre, the payment of 6d. per acre per annum being allowed to extend over 20 years, when, upon its due completion, a Crown grant will at once issue. Secondly, the greatly valued privilege of selection before survey. Surveys are made free of charge to the applicant, except in the case of poison and grazing leaseholds, when the land is sold at a reduced price under special classification. Under the provisions of the Land Act, all classes of settlers find their requirements provided for. The agricultural areas which have been already surveyed are situated in close proximity to lines of railway, where a surveyed block may be chosen, or other Crown lands may, if preferred, be conditionally selected outside such areas.

The man who is without much capital is, on such settlements as De Hamel on the South-Western and Nangeenan on the Eastern Railway, advanced the cost of clearing his block, the system in force providing that the block-holder shall be paid for his work at contract prices, the amount to be returned by small instalments, on completion of which the ground becomes freehold. The selector can thus, out of his earnings, meet calls which, if made at the start, would have been beyond his power.

To assist closer settlement, Parliament has authorised the purchase of private estates that were acquired by settlers in the early days of the colony, and which have hitherto been merely supporting a few stock instead of farmers. Several of these estates have already been purchased, subdivided, and sold.

At the sale of these estates an allocation board makes the award when there is more than one applicant for a lot. Evidence

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is taken, and the successful applicant is usually chosen from amongst those who have no land, the desire being to obtain a new resident rather than add to the acreage of neighbouring landholders. One thousand acres is the maximum that can be individually held in a repurchased estate, and no free farms are granted therein.

Divisions of the State.

Western Australia is estimated to contain 975,920 square miles, or 644,588,000 acres. The State extends in length from north to south from Cape Londonderry, in latitude 13° 30′ S., 1,480 miles south to Peak Head (south of King George Sound), in latitude 35° 8′, and is about 1,000 miles in breadth from Dirk Hartogs Island, 112° 52′ E. longitude, on the west to the 129th meridian on the east. In this wide area there is, as might be expected, a great variety of soil aud of climate, permitting of the production of nearly every kind of crop. The Land Act of 1898 cites six main divisions of territory, namely: Kimberley, North-West, Western, Eastern, South-Western, and Eucla. The first three divisions contain 358,000 square miles, and are at present more especially adapted to tropical cultivation and for pastoral purposes, to the latter of which they are principally devoted. In the South-Western portion are to be found the farming districts.

Kimberley Division.

This division contains an area of 144,000 square miles.

The principal rivers are the Fitzroy, emptying into King Sound; the King Edward and Drysdale, embouching into Napier Broome Bay; the Ord, flowing into Cambridge Gulf; the Prince Regent, and the Glenelg.

The Kimberley Goldfields District, situated at the watershed of the Fitzroy and the Ord, at one time attracted considerable notice. Owing, however, to its distance from either of the two ports, Wyndham and Derby, and the great expense of transport and provisions, together with the want of suitable labour, it has not thus far had a fair chance of development.

A telegraph line connects Derby, Wyndham, and the Kimberley goldfields with Perth, and the Eastern Extension Telegraph Company's alternative cable lands at Roebuck Bay.

There is magnificent country in this portion of the State for both sheep and cattle, which, especially the latter, thrive remarkably well; and in the future it is likely to be the great source of the meat supply for both export and home consumption.

The climate is fairly good, though trying on account of the heat. The land on the alluvial plains is very rich, and, with irrigation, suitable for tropical culture.

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Average temperature, about 83°; average rainfall, about 24 inches.

North-West Division.

This division contains 81,000 square miles. It is a rich pastoral country, consisting of well-grassed plains, intersected by bold ranges and hills, in most cases covered with spinifex (*triodia irritans*). It is capable, in the best portions, when fenced in, of carrying a sheep to two acres.

It is fairly well watered, and stock thrive and increase wonderfully.

The climate is healthy, but the heat in summer is great.

Average temperature, about 76°; average rainfall, about 13 inches.

The Pilbara Goldfield is within this division.

Western Division.

The Western Division comprises an area of 133,000 square miles.

The country is, in its present state, most suitable for pastoral purposes, and has been proved to be healthy for all kinds of stock. It is fairly well watered, and capable of much improvement by fencing the land and either conserving water or sinking for it. It is generally a very flat country.

The climate is good, though the heat is great in the summer.

The average temperature is about 72°, while the average rainfall is about 8 inches.

Included in the Western Division are the Murchison, Peak Hill, Yalgoo, and Ashburton Goldfields.

The Murchison and Gascoyne Rivers, and their tributaries, drain this important division.

Eastern Division.

This immense division contains 491,920 square miles, and comprises the whole of the interior of Western Australia.

Average temperature, about 63°; rainfall, about 9 inches.

The Yilgarn, Coolgardie, East Coolgardie, Dundas, East Murchison, Mount Margaret, and other goldfields of the Eastern Goldfields group, which lie within the division, are amply fulfilling the hopes originally entertained as to their permanency and richness.

Considerable portions of the Eastern Division are eminently suitable for pastoral purposes.

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Farm land, Brookton.

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South-West Division.

This division contains 77,850 square miles, and comprises, as regards climate, the most temperate part of Western Australia. It is the portion of the State that was first settled.

Its South-Western corner, which is heavily timbered and well watered, is capable of supporting a large population. It is generally an undulating country.

Numerous rivers enter the sea within this division, of which the principal are the Greenough, Irwin, Swan, Murray, Collie, Preston, Blackwood, Kalgan, Pallinup, and Phillips, but they are, as a rule, very short, and merely drain the country within 100 miles of the coast.

In the natural state of the land in these parts about 10 acres are required to keep a sheep, but when improved, the runs will keep a sheep to two acres, and in choice places a sheep to one acre.

Most of the European grains, fruits, and vegetables can be cultivated, and have been brought to a high state of perfection in the South-West Division. The soil in parts is sandy, but this sand, when irrigated, is highly productive. There is also a large extent of light, friable soil suitable for all kinds of crops.

The climate is very good, and the rainfall varies from 10 inches in the Northern and Eastern to 43 inches in the South-Western and Southern portions of the division.

The average temperature in the North is about 66°, to the Eastward 63°, on the West Coast 63°, and on the South Coast 59°.

The average temperature for the division, taken as a whole, is about 63°, while the average rainfall amounts to about 22 inches.

Eucla Division.

The Eucla Division contains 48,150 square miles, and, except for a few sheep stations near the coast, is at present almost unoccupied. The portion eastward of Point Culver is very badly supplied with surface water.

The country between the Fitzgerald River and Point Culver is fairly watered and moderately grassed.

The country north of Eucla is an elevated plateau, splendidly grassed, and well suited for stock if permanent water could only be obtained and conserved.

Average temperature, about 61°; average rainfall, about 14 inches.

LAND DISTRICTS.

In addition to the land divisions, which have been principally arranged with reference to the Land Regulations dealing with pastoral leases, the State is also divided into land districts,

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mainly for the purpose of conveniently dealing with land sales. There is no definite connection between the two modes of dividing the State; but, to facilitate research, after each district in the following list the name or names have been printed of the division or divisions in which the district is to be found:—

Ashburton (N.W.)
Avon (S.W. and Eastern)

Balladonia (Eucla and Eastern)
Bulga (Eastern)
Buningonia (Eastern)

Canning (S.W.)
Cockburn Sound (S.W.)

Dampier (Kimberley)
De Grey (N.W. and Eastern)
Dempster (Eastern)
De Witt (N.W.)
Dundas (Eastern)

Edel (W.)
Edjudina (Eastern)
Erivilla (Western and Eastern)
Esperance (S.W.)

Fitzgerald (Eastern)
Fitzroy (Kimberley)
Forrest (N.W. and Eastern)
Fraser (Eastern)

Gascoyne (W.)
Gregory (N.W.)

Hampton (Eastern)
Hardey (N.W. and W.)
Hay (S.W.)

Jaurdi (Eastern)
Jilbadji (Eastern)

Kaluwiri (Eastern)
Kent (S.W.)
King (Kimberley)
Kojonup (S.W.)
Kyarra (Eastern and Western)

Leake (Eastern)
Lyndon (N.W. and W.)
Lyons (W.)

Malcolm (Eastern)
Mardarbilla (S.W. and Eucla)
Marmion (Eastern)
Meda (Kimberley)
Melbourne (S.W. and Eastern)
Mundrabilla (Eucla)
Murchison (W.)
Murray (S.W.)

Nabberu (Eastern)
Nelson (S.W.)
Neridup (S.W.)
Ngalbain (Eastern)
Ninghan (Eastern)
Nookawarra (W.)
Nuleri (Eastern)
Nurina (Eucla)
Nuyts (Eastern and Eucla)

Oldfield (S.W.)

Pardu (N.W., Kim., and Eastern)
Peawah (N.W.)
Plantagenet (S.W.)

Roe (S.W. and Eastern)

Sussex (S.W.)
Swan (S.W.)

Teano (W. and Eastern)
Thaduna (Eastern)

Victoria (S.W., W., and Eastern)

Ularring (Eastern)

Warramboo (W.)
Weld (Eastern)
Wellington (S.W.)
Williams (S.W.)
Windell (N.W., W., and Eastern)

Yelina (Eastern)
Yilgarn (Eastern)

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CLIMATE.

To an emigrant, the climate of a country to which he is attracted is naturally an interesting question. Western Australia's climate is most salubrious. The records of Perth may be taken as fairly representative of the South-West Division. The highest recorded shade temperature at Perth was 116·7 on the 25th of January, 1878. In 1904 the average maximum day temperature for January (the hottest month), in the Perth Gardens, was 89·5. The seasons are equable, violent changes being practically unknown. The dry season generally extends well into April, when the first rains fall, the greater part of the rainfall occurring between May and September, when heavy showers are succeeded by bright weather. The annual average rainfall at Perth is 33 inches, and further south along the coast it reaches 40 inches. In 1904 the average maximum day temperature at Perth Gardens during July (the coldest month) was 61·4, and the average minimum at night 47·3. The thermometer in the shade rarely falls below freezing point. Spring-time is very enjoyable, the thermometer ranging from about 70 in the daytime to 50 at night. During that part of the year wild flowers of infinite variety and brilliant colours bloom luxuriantly. Passing inland from Perth, the climate changes rapidly, the summer days becoming hotter, and the winter nights colder. In January, 1904, for example, the mean maximum day temperature was 87 at the Perth Observatory, 90·8 at York, 94·2 at Southern Cross, and 92·2 at Coolgardie. In winter the coldest regions extend from Southern Cross in a more or less south-westerly direction. Thus the mean minimum night temperature in July, 1904, was 47 at the Observatory, 39·1 at Southern Cross, and 41·6 at Katanning. In these parts frosts at night are not infrequent; yet snow and ice are very rare. Further north the summer heat is very great. The mean maximum day temperature at Cue, on the Murchison, was 101·9 in January, 1904. North of latitude 28 the summer is warm. The winter months are, however, enjoyable and healthful.

Rainfall.—The Kimberley District, in the extreme north, has an annual average rainfall varying from 20 to 27 inches, due mainly to summer thunderstorms. The wettest portion of the whole State is the South-West corner, where the annual average is about 38 inches, decreasing northwards to about 19 at Geraldton. Eastwards the rainfall lessens to 30 about Albany, 25 at Esperance, 15 at Israelite Bay, and little more than 10 at Eucla. From the west coast inland it decreases as follows:—From 19 at Geraldton to less than 10 at Yalgoo; from 33 at Perth to less than 20 at Newcastle and Northam, and to about 10 at Southern Cross. A similar diminution occurs eastward from Bunbury, starting with a register of about 33 inches. The fall in the Darling Ranges is much heavier, often amounting to more than 40 inches.

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THE LOCAL MARKET

A great impetus has been given to agriculture in Western Australia by the discovery of the goldfields, which, in twelve years' time, by increasing the population from less than 60,000 to 243,000, has created new local markets for produce. From 1897 to 1904 the area under crop increased from 111,738 to 283,752 acres; and a still more rapid rate of development is now going on, because the demands of the local market, the best the grower can have, have not as yet been overtaken. The land in the vicinity of the goldfields cannot at present produce sufficient food to support their population, hence the 84,000 people in and around the mines are as yet dependent on the more westerly agricultural districts for their supplies. So far, the local producer has hardly commenced to supply the community with many articles of ordinary consumption, such as butter, bacon, cheese, pork, jam, and eggs, a fact which is apparent from the Customs return of imports here appended:—

Food Imports.

Articles.	1895.	1903.	1904.	Total for 10 years.
	£	£	£	£
Agricultural Produce—				
Wheat	17,812	42,184	2,587	280,028
Barley	1,747	1,880	8,316	47,309
Oats	116,207	76,508	59,546	893,312
Maize and Gram	777	1,255	1,014	15,716
Rye *	14	*	*	431
Pease	1,413	3,987	1,907	23,615
Beans	277			
Rice	6,421	22,961	20,715	148,209
Malt	9,834	25,815	37,832	296,714
Flour	62,712	164,480	85,813	1,162,466
Flour (self-raising) *	438	*	*	3,562
Bran	20,865	57,280	38,839	482,683
Pollard	5,779			
Oatmeal	5,353	27,627	23,221	210,162
Arrowroot, Tapioca, Sago, Cornflour, Pearl Barley, and others, n.o.e.	4,729			
Potatoes	10,219	45,978	36,671	411,978
Onions	3,989	9,347	7,966	101,638
Hay	1,521	7,458	4,159	227,793
Chaff	50,298			
Hops	4,706	19,874	16,461	130,144
Total	325,104	506,584	344,047	4,435,760
Fruit and Vegetables—				
Green Fruit	8,878	40,695	37,600	229,380
Preserved Vegetables	14,987	20,835	36,635	192,993
Fresh Vegetables *	...			
Vegetables, Dried or Concentrated *	...	695	1,245	3,787
Pickles and Sauces	9,375	19,849	24,247	182,316
Jams and Jellies	27,637	53,273	58,290	477,272
Bottled and Tinned Fruit	14,653	† 9,108	*	225,981
Currants	1,906	5,773	4,780	49,658
Dates	762	1,223	1,290	13,817
Raisins	2,251	6,415	5,438	51,396
Dried Fruit, n.o.e.	4,426	5,200	6,092	49,041
Nuts	1,517	4,906	5,140	34,494
Total	86,392	167,972	180,747	1,510,035

* In cases where blanks occur, the article was probably classified under some general heading, and not particularly specified.

† Including Vegetables, bottled and tinned.

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Food Imports—continued.

Articles.	1898.	1903.	1904.	Total for 10 years.
Wines—	£	£	£	£
Still	16,302	31,140	32,138	378,381
Sparkling	20,302			
Total	36,604	31,140	32,138	378,381
Live Stock—				
Horses	43,378	38,755	67,985	397,861
Cattle	44,659	118,580	98,079	1,100,881
Sheep	26,400	104,454	51,290	723,165
Pigs	2,524	2,106	304	53,407
Total	116,961	263,895	217,608	2,275,314
Farmyard and Dairy Produce—				
Meats—Salt, Fresh, and Preserved (including Tongues)	55,989	176,771	174,225	1,076,081
Hides	6	..	...	749
Tallow	980	1,099	484	3,839
Bacon	26,193	138,386	130,361	946,112
Hams	5,435			
Poultry (alive and dead)	1,786	3,569	4,970	32,016
Eggs	11,920	73,538	80,055	543,460
Lard	680	2,690	7,821	64,573
Dripping *	...	10,593		
Honey	1,340	1,252	3,138	20,600
Beeswax	17	210	89	882
Butter	73,999	285,587	297,702	2,341,874
Cheese	11,201	34,123		
Preserved Milk and Cream	37,167	99,644	99,559	739,272
Total	226,713	827,462	798,404	5,769,458
Total Value of Imports of above specified produce	791,774	1,797,053	1,572,944	14,368,948

* In cases where blanks occur, the article was probably classified under some general heading, and not particularly specified.

Note.—This table has been compiled with the special object of showing the values of the importations into Western Australia during the last 10 years of such products of the soil, and of live stock as could have been produced within the State, and to serve as a basis for calculations as to the market reasonably to be expected therein for home-grown products.

The total imports of meat and farm produce for 1904 amounted to the value of £1,572,944, which proves that the local market alone offers scope to a far greater number of farmers than are at present settled in the State. The opening for them indeed is evident on every hand. A country like Western Australia that, owing to its being in the infancy of development, does not yet produce enough for its own consumption, clearly offers the best market for the local producer. Instead of having to sell his crops in the markets of the world, after paying shipping freights, brokerage, etc., he has little or no competition, and, consequently, is able to obtain a high price at his own door. His Eastern rival, sending stores or stock to share in the Western Australian trade, pays various oversea and other charges, the saving of which forms a large margin of profit to the grower on the spot. The natural advantage of being about 1,000 miles by sea from the Eastern farmer and grazier is a protection which our producers are not for some time likely to be deprived of. Nor can they lose the superior facility for marketing perishable articles like butter, meat, fruit, etc., in that fresh, attractive condition which always commands the highest price. The advantage

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enjoyed by the Western Australian farmer on these points is equal to a subsidy, and farming has consequently paid so well that many energetic selectors who took up land only a few years ago with very small means are to-day the owners of valuable and highly-improved properties. The rapid progress of the State, in fact, practically offers a premium for going on the land, irrespective of the easy provisions of the Land Act, and of the facilities for railway transport that are to be found in almost every district.

Primary and Secondary Industries.—So far not even the primary industries, such as the supply of milk, pork, and fruit, have been equal to local requirements. When the demand for these articles has been met, there will still remain butter, cheese, bacon, jams, and other preserves, of which a large and rapidly growing output will be absorbed. As evidence of the under-supply of local produce, the following Adelaide newspaper telegram of 14th August, 1903, may be given:—"By the s.s. Winfield, which left Port Adelaide to-day, 400 pigs were shipped to Western Australia. This is a record consignment. Owing to the demand for pork in Western Australia, the price in Adelaide is now 9d. per lb. Producers recognise the possibilities of the Western Australian market, and they are going in more extensively for pig breeding." It cannot then be wondered at that the value of imported bacon and hams for 1904 amounted to £130,361, when pigs had to be brought from "the other side." There is no reason why in Western Australia pig-raising should not be followed by bacon-curing, why sufficient milk should not be produced for all dairy purposes, nor enough fruit grown for jam making; and with this end in view, it is obvious that there is scope for every energetic agricultural worker who chooses to come to this State.

Comparison of Wheat Yields.—While the land of Western Australia is almost given away, a comparison of its yields with those of other States, where produce does not realise so high a price, is very satisfactory. By way of illustration, the average wheat yields of Australia, for the ten seasons ended February, 1904, were:—

Queensland	16·39	bushels per acre
Western Australia	11·03	"
New South Wales	9·85	"
Victoria	7·23	"
South Australia	4·52	"

The most remarkable feature about the crops of Western Australia is the uniformity of their yield. The explanation of this uniformity may be found in the fact that during the last 70 years of settlement along the western and south-western coast of Western Australia droughts have practically been unknown.

Our National Shortage in Food Production.—The following statement has been prepared by the Statistical Department from the latest figures available for comparison:—

In the year 1903 we produced 56,288 tons of wheat; we imported 21,277 tons of wheat and mill products.

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Wheat Harvest, Bunbury.

Meckering Wheat Lands - a good Harvest.

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We produced 258,503 bushels of oats; we imported 648,503 bushels—between two and three times as many as we produced.

We produced 53,227 bushels of barley; we imported 11,168 bushels.

We produced 4,542 tons of potatoes, and imported 14,563 tons.

We imported 3¼ million pounds of bacon and ham, all of which might have been produced within the State.

We also imported 6¼ million pounds of butter, 1¼ million pounds of cheese, 6 million pounds of concentrated and preserved milk and cream, 1½ million dozen eggs, 4¾ million pounds frozen meat, 12,200 head of cattle, 6,400 head of sheep.

The value of foregoing items totalled over 1¼ millions sterling.

The demand for these products increases daily with the growth of our population, hence the value of our agricultural districts, where the soil is good and the seasons are regular, with unfailing rainfall sufficient for crops, and a large local market waiting to be supplied before it becomes necessary to look elsewhere.

Quality of Western Australian Wheat.—For the season 1903-4, the wheat average of Western Australia was 13·6 bushels per acre. While the wheat crop of the State has never yet been known to fail, and the yields are, as has been shown, superior to the average yield of most other parts of Australia, the quality of the grain is also correspondingly high. At the Paris Exhibition of 1900, a Gold Medal was awarded to a sample of wheat grown near Beverley, which district in the harvest of 1904 produced an average return of 17·1 bushels per acre. The wheat grown in the northerly districts on the Greenough Flats and about Geraldton is also noted for its superiority and weight, going as a rule 64lbs. or 65lbs. per bushel.

Samples of Western Australian wheat have been forwarded by Messrs. Dalgety and Co. to their London office, and have been very favourably commented upon, being considered superior to the f.a.q. standard from South Australia, Victoria, and New South Wales.

Local flour is now almost exclusively used in the bread trade of the State, bakers having found that it is quite equal to the imported article, for which they formerly used to have an undoubted preference.

Average Prices.—As compared with produce prices elsewhere, the average prices obtained in Western Australia for wheat, oats, barley, and chaff (cut hay) are high. In 1903, they ranged between the following extremes:—

	£	s.	d.		£	s.	d.	
Wheat	0	4	9	and	0	6	9	per bushel.
Oats	0	3	0	„	0	4	6	„
Barley	0	4	0	„	0	5	6	„
Chaff	4	5	0	„	8	15	0	per ton.

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General.—There is room in this State for any number of suitable agricultural settlers. In the annual report of the Director of Agriculture, for 1903, the following instructive references to land settlement are made:—"The 12 months under review have witnessed continuous and rapid progress in the development of our agronomical and pastoral resources, the increase of settlement in the rural districts being highly satisfactory, while there is also a perceptible improvement in the methods of cultivation employed. The State has been fortunate in the class of settlers who continue to arrive; generally speaking, they are steady, hard-working men, with a limited amount of capital at their command, and a good knowledge of agricultural work. The excellent results of the last harvest—taking into consideration the irregular climatic conditions of the year, combined with the high market values ruling consequent upon the prolonged and disastrous droughts experienced in the Eastern States—have also had a beneficial effect in encouraging increased land settlement. This is particularly emphasised by the fact that in 1903 no less than 1,045,312 acres of land were taken up for agricultural purposes, as compared with 550,630 acres during the preceding year. The phenomenal increase continued in 1904, when no less than 1,505,968 acres were taken up for agricultural purposes, whilst 28,878,589 acres were brought under pastoral lease. The State is still, however, a large importer of all classes of agricultural produce, and when it is considered what an enormous area of excellent agricultural country, served by a suitable rainfall, still remains in the possession of the Crown in an undeveloped condition, it is greatly to be deplored that so many desirable residents from the Eastern States of the Commonwealth are drifting to South Africa and other countries. The Director of Agriculture of Victoria, in the course of a recent interview, stated:—'The lands of the State which could be utilised for closer settlement are practically exhausted, and in any case those which are available are too far away from the markets and railway communication to induce the sons of farmers, with a little money, to settle upon them. I know numbers of farmers' sons, whose fathers could provide them with a certain amount of money to establish homes of their own, but could not afford to pay them sufficient wages to remain at home, and who are consequently drifting away.' While such a condition exists in Victoria, this State is in need of agricultural settlers to supply the requirements of our local markets, and there are millions of acres of first-class farming lands awaiting development within the boundaries of our agricultural districts. Consequently this drift of population from the Commonwealth is greatly to be deplored. Our agriculturists have shown the highly productive character of our soils, as during the past five years the average wheat production of the State has been more than 10 bushels per acre, and as during the season 1903-4 we had 137,946 acres under cultivation for wheat, it must be admitted that Western Australia has long since passed the experimental stage in wheat production. It is now an established and rapidly progressive industry."

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AGRICULTURAL LANDS.

The Government of Western Australia has obtained a series of most valuable reports on the agricultural and horticultural lands of the State from Mr. W. Catton Grasby, editor of *Garden and Field*, and a well recognised Australian authority on the subject. Mr. Grasby, at the invitation of the Government, spent about three months in examining the country, for the express purpose of inspecting the agricultural lands, and, as stated by himself, he has been able to form a fairly correct opinion of the wheat-growing, dairying, and horticultural areas. On every hand he found that the settlers had the most unbounded confidence in the future of the State. The people on the land, he says, were proud of the State, satisfied with their existing prospects, and confident that the future would duly reward them. At the close of his inspection Mr. Grasby, writing to the Minister for Lands, said :—" My visit has extended from the contemplated six weeks to nearly three months; but I go away feeling that I have only begun to see and realise the immense possibilities of the Western State, the developments of which are only beginning. I shall in future watch with keen interest all that is related to the agronomical progress of the State, and look forward to the time—not far distant—when she will not only be the leading producer of gold, but will rank with her Eastern sisters in the Commonwealth—with which I hope she will soon be connected by an iron road—as a great agricultural community."

The reports submitted by Mr. Grasby are most complete, and the short summary of them, here appended, will clearly show the remarkable character and value of the lands on which it is hoped that a large, thriving, and contented population will shortly be settled.

Summary of Mr. Grasby's Report.

The Wheat Lands.—" From what I have seen of the country, extending from Northampton, in the Victoria district, to Katanning and Broomehill, on the Great Southern Railway, I have no hesitation in saying that I consider it one of the finest wheat belts in the world. The climatic conditions, as I understand them, are as nearly perfect for wheat-growing as can be found. The rainfall is good, without being heavy, and is wonderfully regular. The rain falls almost entirely during the cereal-growing period, and every condition points to the accuracy of the statement made by the old-established farmers that drought is unknown, devastating storms and floods practically so, and a general failure of the crops an unheard of thing. Red rust does not appear to have yet caused trouble, and the evidence points to the conclusion that the conditions are unfavourable to its development. The above is a very emphatic statement to make after two months of investigation, but having read it over I will not modify it. I find the total area under wheat in the State, given by the Government Statistician, in the return just published, to be 137,946 acres, yielding a total of 1,876,252 bushels, or an average of 13·60 bushels per acre.

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"The wheat which I inspected appeared to be, as far as one could judge, of first-class quality, plump, and full in the kernel, of fine colour, and of the same type as that produced in South Australia.

"In considering the value of land for cultivation purposes many people fall into error through failing to grasp the whole of the factors which are necessary to produce crops. These may be grouped under three heads:—(1) Richness, *i.e.*, the presence of the elements of plant-food in available form; (2) physical properties, *i.e.*, the ease with which the soil is worked, its capacity to receive and hold moisture, and the opportunity it offers for root action; (3) climatic conditions.

"It is a well-known fact that many of the richest soils, not only of Australia, but of the world, are barren and useless for cultivation because of the unfavourable climatic conditions. This applies to much of the best land of Australia. It is also equally true that some of the richest heavy soils are so difficult to work, owing to the unfavourable physical condition, that it is cheaper, easier, and more profitable to add the plant food to soils with good physical properties than to expend the necessary labour in working the rich, strong clay lands. I have had costly experience of this fact. Of course, when the three conditions of richness, friability, and climatic conditions are combined, as they are in the volcanic soils of Mount Gambier, Warrnambool, Ballarat, or Circular Head, we have lands which are unsurpassed in the world, and they are valued accordingly.

"Now the point which was long overlooked in Western Australia, and which is now so little understood by outsiders that it leads to unfavourable criticisms, is that while much of the soil is undoubtedly deficient in one or more of the elements of plant food, particularly phosphoric acid, and probably lime, it possesses in a wonderful degree the other two essential conditions, for it is exceedingly friable, and the climatic conditions are regularly favourable.

"So far, I understand, the only manures used have been phosphates, and it has been found that a comparatively small dressing has just the same effect that it has on the wheat lands of South Australia and Victoria. So far as experiments have gone, I understand that here, as in the Eastern States, nitrogen and potash do not appear to be required.

"For agriculture in Western Australia I foresee a magnificent future—greater, I believe, than even the most enthusiastic Western Australian realises. I shall be surprised if in 10 years the product of what I have called the wheat belt does not reach 10,000,000 bushels. This, after all, is only five times what it is now, but it is two-thirds of this year's return in South Australia, and about one-third of that of the best season experienced in New South Wales. In conjunction with that yield of wheat there will be an immense aggregate of sheep, a big export of frozen lambs, and a large supply of wool, because with the development of the wheat must come the develop-

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Stock on the Swan River

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ment of sheep-raising on the farm. Pioneer farmers who are just clearing their lands can hardly pay attention to this to any extent, but farmers around York, Beverley, Northam, and the other older settlements should take it up seriously, because there is a large quantity of food now going to waste which should be utilised."

Dairying in the South-West.—"The country, especially such as that near Bunbury and Busselton, is capable at once of supporting a number of first-class butter factories, while the lands nearer Perth should, I think, provide an unlimited supply of milk and cream for Perth and Fremantle. In saying this I do not wish to cast reflections on what has been done or not been done in the past. The developments of this State have been so rapid that it was but natural that progress should be along the lines of least resistance. I am thoroughly impressed with the immense possibilities of the country, but I fully realise the difficulties which have to be overcome, and I am surprised to find how much the people have done under the adverse conditions under which they have worked.

"I would advocate the utilisation of the well-drained river lands, and such of the less swampy land as is ready or almost ready for the growth of fodder. Now that hay shows a tendency to come down to prices which do not leave big margins, I think it will be found more profitable here, as it has been in the wetter districts of the Eastern States, to grow green summer fodder for cows and stock rather than hay. The land which will produce a moderate crop of hay will yield a great quantity of ensilage, because when oats, barley, and peas or tares are down together, and one helps the other, the result is a dense tangled mass of the most nutritive foodstuffs which, when made into ensilage, can be kept indefinitely, and will go further than when used green, because the fermentation in this ensilage pit seems to increase the digestive ratio. It is really surprising, and can hardly be understood until tested, how much stuff will come off an acre of such mixed crop as I have suggested.

"I have been fortunate in seeing the country at its driest time, and have therefore been able to note the quantity of water available for irrigation. In addition to the surface supply, there is the inexhaustible artesian supply yet undeveloped.

"I believe there are great possibilities for lucerne in the South-West, and no plant offers greater scope for experiment on an extensive scale. It lives through the summer all right, and affords a bite of green feed all the time. I would like to see some of the sand plains tried for this crop."

Dairying in the Eastern Districts.—"Can dairying be carried on successfully in Northam and kindred districts, considering that there are practically six months without rain and green feed?

"Decidedly yes; not of course so readily as in the Western Districts of Victoria, but while there are special drawbacks there are special advantages. In the first place, while the summer dries up the feed, the winter and spring are genial, and grass is then

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plentiful. In the second place, up to a certain and considerable limit, there is a special and exceptionally profitable market.

"Green fodder is very plentiful in the spring, but by sowing mixed crops of oats, barley, peas, and tares, tremendously heavy crops of green stuff can be grown, and this can be made into ensilage at a comparatively low cost. Roughly speaking, a cubic foot of ensilage weighs 50lb., and this, with a little straw, pickings in the paddocks, and so forth, will be found ample to keep the supply of milk through the summer.

"The Cape weed grows very luxuriantly in the Eastern Districts, and produces an enormous amount of excellent green stuff. This will not make good silage alone, being too watery, but herein lies one of its virtues for usefulness in the district where there is also an unlimited supply of 'cockie chaff' and good sweet oaten or wheat straw. If the chaff and straw be stored in the summer and kept until spring, it can then be mixed in about equal proportions with the Cape weed and other green stuff and a sprinkling of salt in silage pits, and the result will be a nutritive, palatable ensilage which the cattle will relish, and which will be the means of producing good milk all through the summer.

"My present opinion is that in ensilage rather than in summer crops lies the chief solution of one phase of the dairy question in the Eastern Districts. Not only does it provide for the utilisation of valuable food which now goes to waste, but the feeding value of good ensilage is very much greater for dairy cattle than that of good hay."

Dairying in the Dry Season.—"We have to consider how dairying can be carried on during a period of five or six months without rain, and it seems to me too much to expect any kind of grass to produce green fodder under such conditions. There are grasses which will withstand the long period of dry weather, and come up fresh with the first rains falling, but it is not that which is needed, but green food during the actual dry months; so that the problem is really quite different from that experienced under Eastern conditions. While we cannot expect grasses to grow, we find on every hand that vines and fruit trees will make a vigorous growth during the summer, and produce large quantities of green foliage. Now, if fruit trees will grow and produce a large quantity of green food, is there not some plant which can be found which will produce a succulent fodder suitable for dairy stock during the dry summer period? The problem is one of great importance, and even if the world has to be searched for such a plant, I think that a successful result—or I should say that the chances of a successful result—would fully warrant any outlay necessary for the search."

Sheep on the Farm.—"When dairying cannot be carried on under fairly favourable conditions, I am of the opinion that the stock which will be found most profitable in the Eastern farms is sheep, and here we have the experience of South Australia to guide

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us, for during the last 10 years there has been an immense development in connection with the keeping of sheep on farms, which has been largely due to the growth of the frozen lamb trade. If my memory serves me, during the past season Adelaide shipped approximately 160,000 lambs for the London market; the bulk of these were bought either on the farms or in the sheep market at very profitable prices, and there is every indication of the trade growing from year to year. Now the Eastern districts in this State are as well situated for the development of this trade as either Victoria or South Australia. The lambs are required for shipment at the time when there is abundant grass available, so that the farmer will simply have to keep a proper number of breeding ewes, and provide proper feed in the dry season for the maintenance of these in a healthy condition. For this the value of his stubble cannot be over-estimated, and he will have an ample supply of suitable feed for the rearing of lambs during the spring and early summer. I look forward to the time when this industry will assume very large proportions indeed, all the way from Newcastle down to Katanning and Broomehill."

Apples, Pears, and Plums.—"Much of Western Australia is pre-eminently fitted for the development of the apple industry. There are, however, difficulties to be overcome and dangers to be avoided, and it is perhaps possible one may be able to offer suggestions which may in some degree assist. There are apples, and there are first-class apples. There is land, any quantity of it, where apple-trees will grow (sometimes too freely) and produce fruit for home use or for sale within the district, where it would be foolish to plant orchards to produce apples for distant markets, or to compete against the growers in more suitable localities. There are soil conditions where apple-trees will grow and yield well for a few years, after which they become stunted and die out, whereas, in other places, the apple-tree will thrive and produce fine fruit for a generation or two.

"The intending apple-grower, if he desires to be successful, must, among other things, consider the following points:—He must select a spot where the climatic conditions are favourable for the production of high-class fruit of good packing and keeping qualities, and, fortunately, there is no difficulty in securing these conditions in Western Australia.

"The conditions most suitable for the apple are to be found in the south-west corner of the State, and, going from the general to the particular, and judging from what I have seen, such places as Mount Barker, Bridgetown, Warren, etc., are almost ideal apple country. Katanning, with its elevation of 1,100 feet, the Williams and Arthur Rivers, the Darling Ranges, also grow good apples. In addition, there are tens of thousands of acres which are suited for summer apples, but I consider that the first named district will, in the future, prove to be the apple belt of Western Australia.

"Practically most of what I have written about the apple will apply to the pear. The State is eminently fitted for pear culture,

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but it is necessary to remember that while it is easy enough to grow pears, it requires a deal of knowledge and experience in gathering, maturing, and marketing the fruit when grown.

"Japanese plums, I find, do remarkably well here over a considerable range of soil and climatic conditions, as some of the varieties, such as Wickson, Burbank, Abundance, Satsuma (blood plum), and General Saigo, are prolific bearers of very fine fruit of beautiful quality, alike for dessert and for cooking. I feel sure that the Japanese varieties of plums will, in the future, form a special feature of the Western Australian fruit trade, and that in a few years a profitable trade will be done in England with some of these plums, as they are not only of fine quality and attractive appearance, but carry remarkably well."

Orange Growing.—"I am able to say, without the slightest feeling of exaggeration, that for the growth of vines, olives, figs, apples, pears, Japanese plums, and oranges, including the mandarin, portions of this State are equal to the best fruit districts of Europe, America, or Eastern Australia. I take the orange first, because I confess that it has been a constant matter of surprise to see how the trees grow. I had had opportunities in Adelaide of sampling Western Australian oranges grown at the Harvey River, and now have had the privilege of seeing the trees as they appear, without irrigation, at the end of five months practically without rain. There may be other parts of the world where the orange will thrive better and bear as heavy crops of as fine fruit with as little effort, but I do not know them. . . . . I would not like to say that the orange tree grows better here, or that the oranges are better than in portions of New South Wales and Queensland. The comparison I make is that, whereas in other first-class citrus localities people either irrigate or have summer rains, in Western Australia the oranges are grown without either. Of course it is only under suitable conditions that the fruit does so well, but there seems to be no practical limit to these conditions. The suitable land where no water is required is usually in distinctly limited areas or patches, but these patches occur so frequently over such an immense extent of country that it will be many years before all the available country can be used."

The Market Question.—Mr. Grasby considers it will be years before the requirements of the large and increasing number of consumers can be met. To the question that he has heard asked:—"What shall we do when the limit of consumption is reached?" he replies that he does not know of any instance of permanent oversupply of any fruit. Every time the cry of over-production has been raised, he has found only a temporary glut or a bad adjustment of business. The consumption greatly increases as fruit becomes reasonably cheap, and, in his opinion, present prices in Western Australia are too high, much higher than the figure at which oranges can be profitably grown. He believes, too, that outside markets will be developed. In London there is a limited profitable demand for Washington Navels. South Australia is not

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likely to have the surplus to supply that market; and, in any case, he adds, Western Australia will have a decided advantage over her if it should come to be a matter of competition.

A Notable Orange Grove.—A remarkable group of nineteen orange trees, that were raised from pips planted in 1860 at Pinjarra Park, was noted by Mr. Grasby as having each a girth of over 60 inches, and a height of 35 to 37 feet. The trees were in perfect condition of health, not one of the trunks showing any sign of decay. The fruit from these old trees and some younger ones, covering together probably half an acre, was sold in 1902 for £300, and in 1904 it was estimated that the trees carried 500 cases of fruit. At Lowlands, on the Serpentine, there are also several old orange trees nearly as noteworthy. With regard to the young orangeries, from one to seven or eight years of age, the marvellously healthy rich dark-green foliage, relieved by the more delicate shades of the vigorous growth of young shoots, is very striking.

An Encouraging Summary.—In concluding his report, Mr. Grasby states:—"I have never seen finer blocks of trees in more perfect condition of healthy growth and prolific cropping than, for example, those at Roelands, near Bunbury; the orangeries on the Harvey Estate; those at Armadale; those at Gingin; and those at Boyanup, at Newcastle, and in the Victoria District. One should also mention smaller plantings on the Great Southern line; for example, at York, Beverley, Wagin, and Katanning, which, although not grown under such favourable conditions as nearer the coast, are yet only slightly inferior in vigour, and not at all inferior in point of healthiness. These are only a few of those I have seen, and I am aware that I have only seen a few of what there are.

"The reader will the better grasp the full significance of what I have written when he remembers that the Boyanup and the Victoria District orangeries are some 430 miles distant from one another, North and South, and that those at Katanning and at Bunbury are about 100 miles distant, East and West. This is a big area over which an intending grower may look for suitable 'patches,' and when he is looking for orange land he must obtain such as has been proved to be suitable. . . . I have seen more failures in fruitgrowing through neglect of this essential principle than from any other cause, and in no case does it apply with greater force than to the orange."

Cultivation of Various Fruits.—The fig-tree, reports Mr. Grasby, grows like a weed anywhere and everywhere, and has great possibilities. As the jam-making industry is developed, one of Western Australia's specialties will prove to be the fig jam, fig preserve, and canned figs. If of no other use, the fig orchard will prove one of the most profitable corners of the farm as a producer of stock food. At the present time the second crop of this fruit is largely used for feeding pigs, fowls, and even sheep and horses.

"The olive at present has little commercial significance in Western Australia, for the only use so far made of it is to fatten

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turkeys and fowls, or feed pigs. No one who loves this tree could travel through the country without noticing the freedom with which it grows, and the heavy crops of berries now maturing. In years to come, when land conditions adjust themselves, the olive oil industry should make a good showing amongst the minor industries of the State.

"In regard to stone fruits, one cannot go over the orchards, as I have done, watch the trees, and talk with the growers, without feeling doubt as to the general suitability of the State for growing some stone fruits, excepting special varieties, such as the Alberta, of which I have seen many heavy crops of first quality. My inquiries lead me to the conclusion that the peach-tree does not fruit nearly so well nor so regularly as in the Eastern States. European plum-trees do not bear so well nor so regularly as the Japanese sorts. With regard to cherries, I think that further experimental planting should be carried on. The apricots here do not bear as they do in the Eastern States; but there must surely be places in this great State where the apricot will thrive and bear well. I have seen finer lemon-trees for their age at Harvey and near Bunbury than anywhere in Australia. The trees, too, were carrying good crops of fine quality lemons."

Vines and Wine-making.—"For heavy bearing and quality of fruit, the vines grown under suitable conditions in Western Australia cannot be excelled by those of the Eastern States. I might even go further, but I wish to be cautious, and really, to one who knows, the above statement is the highest praise one can give, for I have always considered the choice grapes of the Adelaide plains to be the perfection of grapes grown in quantities under general vineyard conditions.

"All that I have said of the wide range of country over which the orange thrives applies with threefold force to the vine, which is much hardier, and in its many varieties suited to a much wider range of soil and climatic conditions than the orange. The vine has undoubtedly a great future before it in this State, for it grows like a weed, and all that is needed is to conduct the business of viticulture on sound business lines.

"There does not appear to be any doubt whatever that the conditions in this State are eminently suited to make high-class wines, and as the art of doing so cannot be learned within a few days, it is desirable that serious attention should be given to the matter, in order that the industry may assume the importance due to it.

"I have tasted a number of wines, which only required care and age to compare favourably with the best wines of the other States. I conclude that the conditions here are in every way favourable for producing high-class wines; but some wine-growers have to learn that wine-making is an art requiring technical knowledge, experience, great care, and the most scrupulous cleanliness in every detail. As there is no State in which grapes grow more

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freely and yield better, and as the conditions of the vast areas of ironstone soils are favourable for producing wines of good body and wonderful richness of colour, I think it is highly probable that in the future Western Australia will be found to be amongst the large producers of the highest quality table-wines."

FRUIT GROWING.

Fruit for Export.

The advantages possessed by Western Australia for fruit-growing are always conceded. She has the right soil, rainfall, and climate for producing all European fruits except perhaps the cherry, which, as a rule, does not bear well. Besides the natural advantages, her geographical situation is most favourable for an export trade when the local demand has been overtaken. Fremantle is much the nearest Australian port to London, which is a matter of great advantage in the shipment of the perishable products of garden and vineyard. The high quality of the fruit produced, and the better condition, on account of the shorter voyage, in which Western Australian consignments should arrive in England, guard against any danger of the over-planting of choice and good-keeping varieties of apples and pears.

An experimental shipment of Grapes to London.—In June, 1904, an experiment in sending grapes to London by mail steamer from Fremantle was made with twelve cases of an Australian seedling called "Bridal," and one case of the "Daira," or "Ohanes" variety, which is the favourite grape shipped from Almeria, in Spain, to England and America. The "Bridal" sample was grown near Chidlow's Well, and the "Daira" at Woodbridge, near Guildford. The "Daira" grape was packed in an ordinary fruit-case with three compartments, and with the cleats nailed close. The compartments were lined with paper, and the bunches, with all defective berries clipped off, were solidly packed in clean cork dust. The case was covered and nailed down a day and a-half after picking and packing. Of the "Bridal" grapes some were packed similarly, brown paper being used for lining the boxes. Some were packed with the bunches in rice-paper bags, with the cavities filled in with cork dust. One case was packed without any packing material, as is customary when sending grapes from the coastal districts to the goldfields.

Five weeks after the date of shipment some "witness" cases of the grapes that had been retained in Perth were opened by the Viticultural Expert of the Department of Agriculture, and found to be in good order, the "Bridal" proving itself to be equal to the "Daira" grape in keeping qualities. Some of the "witness" cases had been kept in a dry-air cool chamber, and others at the agricul-

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tural office. Very few of the berries were found to be decayed, and the cork dust packing had prevented the moisture spoiling the other berries on the same bunch.

Advices from London showed that cork dust proved the best packing. Further experience, however, in the packing of grapes for export will be necessary before a payable trade can be inaugurated.

Oranges for the London Market.—As it has been demonstrated that Western Australian oranges are equal to the best of those grown in any of the sister States, an English report, dated August 21, 1903, is of interest as showing how the London market appreciates what can be grown south of the Equator:—"London's orange supply, which is particularly abundant for the time of the year, has received, during this week, a welcome addition in the shape of prime samples from Australia and Jamaica. The Australian fruit arrived in excellent order by the mail steamer 'Orita,' and the pick of the oranges from your end of the world were some magnificent 'Navels' from South Australia. These created quite a stir in the trade, for the fruit were so large that in some of the cases there were only 72 oranges all told. These sold at about 18s. a case on the average, and 3s. a dozen for oranges wholesale is quite a phenomenal price. Without doubt the South Australian 'Navels' are the finest oranges ever put on Covent Garden market, and though retailers cannot afford to sell them at less than 4s. or 5s. a dozen, it is very certain that fruit of such quality will always command a high price here. The market for such prime goods is, of course, very limited at the prices mentioned, and a shipment of, say, 5,000 or 6,000 cases would in all probability meet with a considerably less profitable market. The South Australian 'Navels' are not only fine fruit to look at, but splendid eating. The only fault one can find with them is that the dominance of juice in them renders it undesirable to attack one without arming yourself with a bib or some other protection for your clothes." The *Central State*, referring to the foregoing report, writes:—"For several years shipments of the golden fruit, small certainly, but typical, were made to the London market, and the fact that buyers there are ever asking for more is unmistakable evidence of satisfaction with the article. In 1897 a few thousand cases were sent to the old country, but in the following year, owing to a short crop, only about 500 cases were despatched. Then, in 1899, when the trees brought forth more fruit, nearly treble that quantity left these shores. The oranges which were shipped to the depôt averaged 14s. 2d. a case, but this consignment was by no means a first-class one. Much of the fruit had shrivelled, and the grading was faulty. Since then shipments have been spasmodic, but official reports from the world's metropolis have consistently called attention to the spirited demand which exists for oranges of the best quality, provided they are landed in London between August and the end of the year. . . . If landed in London between the months mentioned above thousands of cases of

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Australian oranges would be absorbed, because during that period consignments from other countries, such as Jamaica, Florida, and California, are not forthcoming. One authority estimates that even if 5,000 or 6,000 cases were sent from these ports for several months the London market would not be supplied, to say nothing of provincial requirements."

Pears for London.—Western Australia is so much nearer the English market than any of the Eastern States that already, when planting an orchard, it is usual to select the trees with an eye to the keeping and carrying qualities of the fruit, so that eventually advantage may be taken of the Antipodean seasons in shipping to the old world. From time to time tests are made to ascertain which are the best kinds of fruit to send away, and a trial of this nature, which proved most satisfactory, is related by the *West Australian* as follows:—"The productiveness of the soil at Kalamunnda, in the Darling Ranges, within 25 miles of Perth, is strikingly exhibited in a sample of pears from the 'Springdale' orchard. The pears are exceedingly fine specimens of Kieffer's Hybrid, and are described as eminently suitable for export. The fruit, which has been picked for three weeks, is still firm and hard, and will, it is stated, keep for weeks longer. It is a good eating fruit, and has been grown for the purposes of export. The largest of the pears weighs 1lb. 12oz., and the others are only of slightly decreased weight."

Apples on Exhibition.—The quality of the apple crop of the State is being recognised wherever a sample of the fruit is exhibited. The *West Australian* (June 16, 1904) published the following from its Sydney correspondent:—"The Director of Agriculture in Western Australia has sent to Messrs. Searle and Sons a consignment of apples. The sample attracted general attention, the fruit being really splendid, of large size, shapely, well-coloured, and of remarkably clean skin. If this fruit be a fair sample of what can be grown in Western Australia, apple-growers of the East may soon have a formidable competitor in the export trade." This is a well-founded forecast. A fair sample of Western Australian apples is not to be excelled anywhere for size, appearance, or flavour.

A Sydney correspondent of the *West Australian* writes:—"An interesting exhibit of apples grown in Western Australia has been made in this city. The fruit, taken as a whole, has attracted a great amount of attention, and the fine display has done much to tell the New South Wales people what the land in Western Australia can grow in fruit. The specimens shown are all very fine samples of apples, and are all unblemished, being in splendid condition, and would, so experts here say, take good prizes in any show. The fruit is ticketed as being sent to Sydney by the Government of Western Australia, and grown on the redgum and jarrah lands of the State. . . . The consignment has done much towards enlightening people in the East in regard to the fertility of the lands

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of Western Australia, and the great asset the State possesses in fruit growing. . . ." It used to be erroneously supposed that the agricultural lands of this State were very inferior to those of her Eastern sisters, until it was proved by practical experience that her wheat yield is larger, on the average, than that of most other parts of Australia, and that the fruit here grown is equal to any in the world.

London Prices for Australian Apples and Pears.—A London advice, based upon the experience of the season of 1903, states that the best paying varieties to ship are the following:—Apples—Dunn's Seedling (13s. 4d. to 16s. 8d.), Rome Beauty (11s. to 13s. 3d.), Stone Pippin (11s. to 16s.), Cleopatra's (12s. to 15s.), Jonathan (11s. 6d. to 14s. 6d.), Esopus Spitzenberg (11s. to 14s.), Sturmer's (10s. to 14s.), Dumelow (12s. to 16s.), London Pippin (10s. to 13s), Adam's Pearmain (10s. to 12s). Pears—Josephine (12s. to 16s.), Broom Park (12s. to 12s. 6d.), Inconnue (12s. to 15s), Vicar of Winkfield (12s. to 14s.), Winter Nelis 14s to 20s.).

Orchard, Vineyard, Wine.

(By A. Despeissis, Viticultural Expert).

Western Australia can undoubtedly be regarded as offering every condition favourable for the payable cultivation of fruits of many kinds.

The varieties of climate and soil available in the South-Western Division make it possible to grow almost any fruit of the cool-temperate, as well as semi-tropical, climates. Foremost amongst these fruits must be placed the grape vine. Every condition favourable to its continuous growth and the perfect maturing of its grapes is met with over an extensive territory, whilst climatic accidents such as destructive spring frost or summer hailstones are almost unknown.

Unlike as occurs in wide ranges of country in South Africa, Queensland, and New Zealand, where wet summers act as a barrier to grape culture, our summer months here, dry and breezy, on the contrary act as a check against the prevalence of moulds, rots, and other fungoid diseases, the combating of which, in the wine-growing countries of Europe, necessitates a considerable expenditure of time and money. Here indeed, just before vintage, a few Christmas showers are generally recorded, which are not prolonged and heavy enough to do any injury, but on the other hand help to swell and fill the berries at a period of their growth when they require rain most.

For grape production, whether it be intended for table, raisins, or wine, Western Australia offers a profitable as well as an extensive market. Table grapes, for instance, cannot be profitably imported from the Eastern States to feed our market, and it is from local growers that we must therefore draw our supply. With a population increasing at the rate of 16,000 to 18,000 every year, the

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Vineyard, Katanning.

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demand is kept well ahead of the production, and as grapes cheapen, the consumption will attain such a figure that no fear need be entertained for the present of over-supplying the market.

Raisins and Currants.—Raisin-drying, on account of the high prices obtainable for fresh grapes, has not yet had to be resorted to as a means for the disposal of any surplus crop, and whilst the Mildura and the South Australian growers are reaping large profits from the drying of raisins and currants, Western Australia, where muscatel and other grapes suitable for drying grow to perfection, has not yet taken a share in that important industry.

Wine.—As regards wine, the consumption is increasing largely as the produce of our cellars becomes better known, and as the proprietors have exercised a judicious care in only stocking their vineyards with those varieties producing wine best suited for export, there is every prospect, whenever a surplus is left over and above the local demand, of our sharing in the rapidly-increasing export wine trade of the Commonwealth. According to official figures, Australia exported to England in 1903 as much as 570,000 gallons of wine, or about three times as much as was manufactured in the same year in Western Australia.

Cultivation of the Vine.—Whilst it is safe to say that vines may be grown almost anywhere along the coastline, from Shark Bay to the Leeuwin, for a distance of 50 or 100 miles inland, without irrigation or artificial watering, it is also true that that immense area is now susceptible of being very considerably increased in the direction of the goldfields, along the track of the capacious water-pipe, which carries rain water from the Darling Ranges.

It must, however, be added that, even within the favourable zone, there are spots where any attempt at vine-growing would certainly meet with failure. For instance, thin swampy land, wet land, clay patches, shallow soil underlaid with rocks, or with impermeable cement pans, and white hungry pipe-clay, should be avoided if profitable returns are looked for.

Varieties of Wine Grapes.—What varieties of vines it is best to grow is a problem which confronts the intending grower from the start. There is such a large variety to choose from that it becomes difficult to eliminate a great many and reduce the choice to a select few. Some grapes lend themselves particularly well to drying, others to packing to distant markets, others are valuable on account of their early ripening, whilst on the other hand some are remarkable for their late ripening. For wine making, a few are essentially claret grapes, others yield wine of the Burgundy type, some are best adapted for the manufacture of a sweet, fruity wine, and others again for making into sherries or port. It really rests with the grower to make up his mind before planting what market he intends to cater for, and, that important question once satis-

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factorily settled, his choice cannot err under the conditions which prevail in Western Australia. If he plants:—

For Drying:—Muscatel of Alexandria, and the Muscatel Gordo Blanco, the Seedless Sultana, or the Black Zante Currant are excellent varieties.

For the Table:—Early Madeleine, Diamond Drop, Green's Early Chasselas, Madresfield Court, Grand Centennial, Red Prince, the Muscat, Raisin des Dames, the Cornichons (Santa Paula and others), Trebbiano, Gros Colman, Wortley Hall, and Almeria.

For Light White Wines:—Reisling, White Pineau, Marsanne.

For Claret Wine:—Malbec, Verdot, Cabernet, Aramon are good sorts.

For the Burgundy type of Wine:—Morrastel, Aspiran, Carignane.

For Ports and Sweet Wines:—Use Grenache, Mourisco Preto, Muscat Frontignac.

For Sherries:—Pedro Ximenes, Verdelho, Doradillo are among the choicest.

For Brandies:—Aramon, Gouais, Folle Blanche.

Precautions against Phylloxera, etc.—All the vines named have been introduced into Western Australia, and may be had from local nurseries or vineyards. That most disastrous pest of the vineyards of the old as well as of the new world, the Phylloxera, is, fortunately, unknown in this State, and in order to guard against its accidental introduction most stringent regulations have been enacted to govern the introduction from abroad of grape vines.

The introduction of rooted vines is prohibited, and vine cuttings can only come in under drastic conditions. On arrival, either through the post or by vessel, the cuttings have to be surrendered to the Chief Inspector under the Insect Pest Act, who, after thoroughly disinfecting them, hands them over to the Department of Agriculture for striking in quarantine ground for a year. At the expiration of that time, those plants which have rooted are taken up, once again disinfected by means of hydrocyanic acid gas, and handed over to the importer. A small fee is levied to cover, in a measure, the cost of the treatment. Intending growers are not advised to go through the trouble of importing grape-vine cuttings, as Western Australia possesses now every variety of vine worth growing found in the Eastern States, and even some which these States do not possess. Cuttings may be had locally without trouble at a cost of 10s to 2s. per 1,000.

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The Shipping of Grapes.—For several years past attempts have been made to ship grapes from Australia to European markets, but it cannot be said that success has hitherto crowned the efforts to establish a profitable trade in that direction. Grapes are not as easy to pack for distant markets as are apples, oranges, and lemons; few varieties are susceptible of keeping, even under the most favourable conditions, for any great length of time, and this fact has not been sufficiently borne in mind by packers in the past.

There are some varieties, however, notably the Ohanes, or Daira of Almeria, which have long established a reputation for packing; others are also cultivated which, more or less, stand packing and long-keeping. It has been proved that, whenever care is taken with the packing of good-keeping varieties, successful shipments may be sent to markets as far distant as the London market, with every promise of opening in good condition. Nor is the London market the only one that is open to us for the export of fresh fruit. Such markets as are offered by Marseilles, Port Said, Colombo, and Singapore could, with far less risk, be exploited, and these, once opened up, would absorb the produce of large areas of grape vines.

How to Pack for Export.—The packing of grapes for export to distant markets is not surrounded with any insuperable difficulty. Careful manipulation, small, neat, and compact packing-boxes, and a liberal use of clean, elastic cork dust are, however, indispensable. Proximity to a railway, a port, or a factory are also, in grape-growing for profit, of considerable importance. It ensures the readier carriage of the fruit, gives a greater choice of markets, and consequently better returns.

Parasites of Fruit Pests.

The destruction of the insect pests of fruit by natural means is a question which has engaged much attention in this State. The State Entomologist has introduced a number of parasites which have been efficacious in coping with several varieties of scale, but the parasite of the Mediterranean fruit fly long defied discovery. The State Entomologist was sent on two extended tours before he was successful in his search, which occupied two years, and was carried out during its later stage under the joint auspices of the Department of Agriculture of Western Australia and the Department of Agriculture of California. The first clue to the habitat of the enemy of the fruit fly was obtained from Dr. Von Ihring, of Brazil, who contributed two specimens of fruit fly to the Museum at Washington, U.S.A. The fruit fly is known in Brazil, but is by no means a pest, owing to the existence there of the parasite. The insect, to obtain which the Entomologist has been twice nearly round the world, he saw at Sao Paolo, 40 miles inland from Santos, the Coffee Port of Brazil, at an elevation of 2,700 feet. "I had not been in Brazil 24 hours," he states "when, on going into a garden,

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I found the fruit fly there, and detected the parasite at work on him. There are as many species of fruit fly in Brazil as in India, but one of the least in evidence there is the very one that has been causing such devastation in our orchards here. They are all parasitised, and the orchards there are scarcely aware of the presence of any fruit fly. Included among the species are two which have badly ravaged the fruit crops of Mexico, but each is effectually parasitised in Brazil. Finding the season too cold at such an elevation for the successful harvesting of the parasite, I went down to Bahia, which is practically the fruit garden of Brazil. Here I found exactly the same conditions of insect life as at Sao Paolo, but had no trouble at all in breeding the parasites. It was here, too, that I found the predaceous beetle. This little chap attacks the adult fruit fly, whereas the parasite lays its eggs in the maggot of the pest. When the eggs hatch out, the young are themselves in maggot form, and attack the larvae of the fruit fly from within. So you see, between the two, the fruit fly hasn't much chance to develop into a real pest."

The parasites were brought to Western Australia in the mail steamer, some in larvae and some in the adult form; some in the refrigerating chamber and some in jars in the cabin. The adult insects were fed on infested fruit during the voyage to England, and on maggots for the rest of the trip. The beetles and parasites carried in the refrigerating chamber came through splendidly. While in California arrangements were made for the forwarding of a consignment of black scale parasites which have done good work in the Californian orchards, having practically revolutionised the local treatment of this pest. Black scale had already been successfully dealt with in Western Australia. The Entomologist brought back with him other parasites of less note, and he reports that in many of the countries passed through, particularly California, increasing attention is being given to the propagation of this effectual check upon pests. The next matter to engage his attention will be a parasite of the codlin moth. In this case he will, it would seem, be spared much trouble, inasmuch as he knows, he says, where to find it; indeed, had he not been hampered by the care of his valuable little stock, he would have picked it up on his way back from America. After the codlin moth there remain the San Jose scale and the red scale to be dealt with in turn, and then Western Australia will have parasites for all her orchard pests.

CONDITIONS OF LAND SELECTION.

It must be carefully borne in mind that the soils on which such excellent results are obtained in this State are mostly very different from those to which immigrants from the old world and the Eastern States have been accustomed. There are large tracts of land excellently suited for agricultural purposes in Western Australia, which at a casual glance do not appear to come up to the

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usual standard of that of other countries, but which, on being put to the test, surpass all expectations. Intending settlers, therefore, must not form any preconceived idea that the only soil which is fertile is that with which they have hitherto been familiar, for it is a peculiarity of the soil of this State that it is, as a rule, far better than it looks. Instead then of forming hasty conclusions, the land seeker should visit the neighbouring farms, note the results there obtained, and judge accordingly.

Selection before Survey.—The elasticity of the land laws in favour of the settlers is indicated by the acceptance of selection before survey. Selectors may go on Crown lands, choose the size, shape (so long as the boundary lines are rectangular), starting and terminal points of blocks, and, by furnishing a sketch of these with their application, can enter into occupation without delay. The only limitation is that the application must be subject to the approval of the Minister, who may insert such conditions and reservations as may appear necessary in the public interest. On survey, access to water and roads will be protected, and a strip a chain wide always reserved on the frontage to permanent water and railways.

Where to Select.—As a general guide to selectors, some of the principal characteristics of the various districts may be pointed out. One of these is that the rainfall west of the Darling Range is heavier than that experienced east of those hills. Another, that land in the vicinity of the coast is more heavily timbered than that inland. Consequently the selector who intends to grow wheat will do best on the eastern side of the Darling Range, while the intense cultivator will obtain most advantages on the seaboard. In the first case, the land can be much more cheaply cleared, and therefore a larger area put under crop; in the other, more use can be made of a smaller piece of ground either under vines, fruit trees, fodder crops, or market garden.

As a general rule the land in the South-West Division of the State is best adapted to the orchardist, vigneron, dairyman, and market gardener; whilst the cereal grower would prefer that in the Eastern, Southern, Midland, and Northern Districts, where the easy clearing and the comparatively level country facilitate sowing and the working of agricultural machinery, while the rainfall is quite sufficient to ensure a profitable harvest.

In the South-West the soil is of a heavier quality, and costs much more to reclaim; but, in compensation, a small piece properly worked under fruit, vegetables, pigs, or cows will suffice to yield a comfortable living.

The Northern District in some of its characteristics resembles the Eastern, Southern, and South-Western country, more especially in its light timber and good grasses.

In order to enable intending settlers and others to readily identify some of the most frequently occurring trees and other

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plants of the State which they may have to clear off their ground, a list of these is here given containing the botanical as well as the vernacular names:—

Botanical Name.	Vernacular Name.
Acacia saligna	Wattle.
„ acuminata	Raspberry Jam.
Agonis flexuosa	Peppermint tree.
Banksia verticillata	River banksia.
„ littoralis	Sea-side banksia.
„ attenuata	Narrow-leaved banksia.
„ Menziesii	Menzies' banksia.
„ ilicifolia	Holly-leaved banksia.
„ grandis	Great-flowering banksia.
„ dentata	Toothed banksia.
Casuarina Fraseriana ...	Sheaoaks.
„ glauca	
„ Decaisneana ...	
Eucalyptus marginata	Jarrah.
„ diversicolor	Karri.
„ gomphocephala	Tuart.
„ cornuta	Yate gum.
„ calophylla	Red gum.
„ loxophleba	York gum.
„ patens	Blackbutt.
„ oleosa	Mallee.
„ rudis	Flooded gum of the South-West.
„ redunca	Wandoo.
„ decipiens	Flooded gum.
„ longicornis	Morrell.
„ salmonophloia	Salmon gum.
„ salubris	Gimlet-wood.
„ megacarpa	Blue gum.
Melaleuca Leucadendron	Paperbark or Ti-tree.
Xanthorrhœa	Blackboy (Grass-tree).
Macrozamia or Encephalartos Fraseri	Zamia palm.
Nuytsia floribunda	Christmas tree.
Jacksonia Sternbergiana	Stinkwood.
POISON PLANTS.	
Gastrolobium calycinum	York Road.
„ bilobum	Heart-leaf.
Oxylobium parviflorum	Box.

As regards the extent of Crown land still available for settlement purposes, the Chief Inspecting Surveyor of the Lands Department, on the 23rd of February, made the statement to the State Immigration Commission that north-east of Meckering land was available in the following areas:—First-class land, 500,000 acres; second-class land, 366,000 acres: total area, 866,000 acres. The rainfall varied from 10in. to 12in. In an area which extended from Burracoppin to Southern Cross there were 380,000 acres of first-class land. The rainfall on this was uncertain, and averaged less than 10in. In the area extending from the Wickepin Agricultural Area east to the rabbit-proof fence there were 60,000 acres of

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Land cleared by the "Forest Devil."

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land. There the rainfall amounted to 14in. An area between Bridgetown and the coast south to Moonalapin and west to Flinders Bay contained 410,000 acres, and the rainfall was between 25in. and 50in. In the area consisting of poison leases on the Blackwood River and land south-west of Kojonup there were 162,000 acres of first-class and second-class land. The rainfall there was from 20in. to 25in. There was a total of 2,195,000 acres of land in the classified areas, of which only the small proportion of 380,000 acres was outside the 10in. rainfall belt, and he knew of several millions of acres of land which would be suitable for agricultural settlement.

It was further estimated that there would be 1,000,000 acres of land, in scattered patches, fit for wheat-growing or other cultivation, from Goomalling north and east of Watheroo within the area of the 10in. rainfall. This land was not yet classified, but yet within the lines of present selection. Outside the lines of present selection, but also within the 10in. rainfall area, it was considered that a total of 3,500,000 acres of unclassified land was available for future cultivation.

Land Selection under the Land Act of 1898.

Purchase by Auction—Town and Suburban Lands.

(Sections 47 to 52.)

Town and suburban lands throughout the State, after being surveyed into lots and notified in the *Government Gazette* as open for sale, shall be sold by public auction, at upset prices to be determined by the Governor; 10 per cent. of the purchase money shall be paid upon the fall of the hammer (unless the purchaser has already paid a deposit of 10 per cent. on his application), and the balance by four equal quarterly instalments, subject to alteration by regulations, from the first day of the next quarter following the date of sale; the Crown grant and registration fees being payable with last instalment. All suburban land is sold subject to the conditions that each lot shall, within two years from the date of sale, be fenced on the surveyed boundaries with a fence of the prescribed description; but the Minister may accept other improvements in lieu of the fencing, and in default thereof the land shall be forfeited, together with all purchase money and fees which may have been paid.

On payment by the purchaser of town or suburban lands of the first prescribed instalment of the purchase money, a license may be issued entitling the holder to occupy the land; and such license may be mortgaged or transferred, as prescribed by the Act.

Suburban lands set apart for cultivation are sold by auction; 10 per cent. of the purchase money being paid on the fall of the hammer, and the balance within five years, by equal half-yearly instalments, on the 1st March and 1st September in each year, the Crown grant fees being payable with the last instalment. The land must be substantially fenced on the surveyed boundaries

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within two years from the date of sale, and one-tenth of the area must be planted with vines or fruit trees, or cultivated *bona fide* as a vegetable garden, or otherwise one-fourth of the land must be cleared and cultivated.

Conditional Purchase by Deferred Payment, with Residence.

(Section 55.)

This section is applicable to land within an Agricultural Area, and also to any other land in the South-West Division, or within the Eastern and Eucla Divisions, which may from time to time be declared open for selection.

The ordinary price of land under this section is 10s. per acre (but this price may be increased in special cases), payable half-yearly at the rate of 6d. per acre per annum, and subject to the prescribed fines for late payment. The maximum area held by one person shall be 1,000 acres, and the minimum, except in special cases, 100 acres: Provided that the area of any land held by the selector under Clauses 46, 47, or 48 of the Land Regulations of 1887, or under Sections 33 or 34 of "The Homesteads Act, 1893," shall, in calculating the total area held by the selector, be deemed to form portion of the maximum allowed.

Applications must be accompanied by a deposit of a half or a quarter-year's rent, as the case may be; that is to say, if the application is made during the first quarter of the half-year, a half-year's rent is required; if in the second quarter, a quarter-year's rent. In the event of the application not being approved, the deposit shall be refunded. On approval of the application by the Minister, a lease shall be issued for twenty years, to date from the first day of the quarter next preceding the date of the approval.

The lessee shall, within six months from the date of his lease, take personal possession of the land, and shall reside upon it and make it his usual home, without any other habitual residence, during at least six months in each year for the first five years from the date of the commencement of the lease; and if possession be not taken the land shall be forfeited: Provided that if the lessee is already the owner of rural land in Freehold or under Special Occupation or Conditional Purchase, or is the holder of a lease of any such lands from the owner, or is the holder of a Homestead Farm within 20 miles of the land applied for, residence, as aforesaid, on such Freehold, Special Occupation License, Conditional Purchase, or Homestead Farm shall be deemed sufficient residence under this section.

The lessee shall, within two years from the date of the commencement of his lease, fence at least one-tenth of the land contained therein, and within five years from said date shall fence in the whole of the land, and within 10 years shall expend upon it in prescribed improvements, in addition to the exterior fencing, an amount equal to the full purchase money. The Minister may allow half the cost of a great and small stock proof exterior fence to

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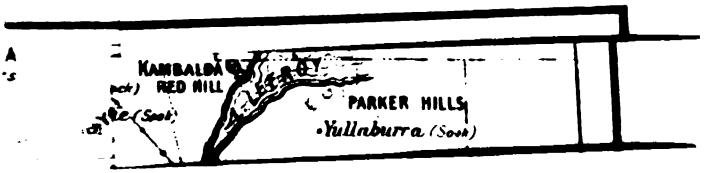

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count as part of the improvements. If the fence is rabbit-proof, and great and small stock proof, two-thirds of its value may be allowed towards the improvements.

At the expiration of the lease, or at any time after five years from the date of the commencement of the lease, provided all the conditions of fencing, residence, and improvements have been complied with, and the said fencing and improvements maintained, and also that the full purchase money and fees have been paid, a Crown Grant of the land shall issue on application.

Any person having obtained land of less extent than 1,000 acres may make other applications for land within 20 miles of the block first applied for, but his holdings under this section must not exceed 1,000 acres. Residence on the additional leases is not required, but all the other conditions shall apply: Provided that if two or more leases held by one person adjoin, they may be considered as one block with respect to fencing and improvements; if not surveyed, the conditions shall date from the date of the survey instead of from the commencement of the lease.

Conditional Purchase by Deferred Payment, without Residence.

(Section 56.)

Land within an agricultural area, and also any other land in the South-West Division, or within the Eastern and Eucla Divisions, which may from time to time be declared open for selection, may be applied for by persons who do not wish to reside upon their land, but subject to all the conditions (with the exception of residence) set forth in the preceding paragraph. Double the expenditure is, however, required in lieu of residence.

Conditional Purchase by Direct Payment.

Section 57.

The price of land under this section is not less than 10s. an acre, payable within twelve months. The maximum area that may be selected by one person is 1,000 acres, and the minimum area is 100 acres.

Applications must be accompanied by 10 per cent. of the purchase money, and, on approval of the application by the Minister, a license shall be issued for seven years, dating from the first day of the quarter next preceding the date of approval of application. The balance of the purchase money shall be paid within twelve months from the date of the commencement of the license, by four equal quarterly instalments—on the 1st days of January, April, July, and October respectively—the first of such instalments to be paid on the first day of the quarter next following the commencement of the license. The licensee shall, within three years from the date of the commencement of the license, fence in the whole of the land, and within seven years from such date shall expend upon the land in prescribed improvements, in addition to the exterior fencing, an amount equal to 5s. per acre; and no Crown grant shall issue until

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the Minister is satisfied that the prescribed conditions have been fulfilled. At the expiration of the license, or at any time during continuance of the license, provided that all the conditions of fencing and improvements have been complied with, and the said fencing and improvements maintained, and the full purchase money and fees have been paid, a Crown grant of the land shall issue. It is further provided that if the area purchased under this section is the balance of a surveyed block a portion of which has been granted to the applicant as a Homestead Farm, the Crown Grant for such area shall not issue until all the conditions appertaining to such Homestead Farm have been fulfilled.

Conditional Purchase of Small Blocks for Gardens, Vineyards, and Orchards.

(*Section 60.*)

Land may be obtained in small blocks for Gardens, Vineyards, Orchards, etc., on the following terms:—The price of the land shall be not less than £1 per acre; the maximum area allowed is 50 acres, and the minimum five acres, and two or more applications may be made to obtain the maximum. A deposit of 10 per cent. of the purchase money is required upon application, and the balance shall be paid within three years from the date of the approval of the application, by equal half-yearly payments, on the 1st of March and September. The improvements required are that the land shall be fenced within three years, and that one-tenth of the same shall, within the same period, be planted with vines or fruit trees, or cultivated *bona fide* as a vegetable garden.

Conditional Purchase Grazing Lands, Second and Third-class Lands.

(*Section 68.*)

Grazing Lease lands are, for the present, withdrawn from selection. The provisions of the Land Act with regard to such lands, which are consequently rendered temporarily inoperative, are contained in the following statement:—

Leases for 30 years of second and third-class lands are granted, called Grazing Leases, but which are really another form of Conditional Purchase. The price of second-class land is not less than 6s. 3d. per acre, and of third-class land 3s. 9d. per acre, payable half-yearly at the rate of 2½d. and 1½d. per annum respectively. If two or more adjoin, they may be fenced as one lease. The maximum area is 3,000 acres of second-class, and 5,000 acres of third-class land, and the minimum in both cases is 1,000 acres, except when adjoining the holding of the applicant, when the minimum is 300 acres; and if one person selects leases in different classes, the total quantity of same must not exceed 4,000 acres, the minimum being the same as before, except in special cases. The conditions are as follows:—The lessee shall pay one-half the cost of survey in 10 half-yearly instalments, the first of such instalments being paid with his application, and subsequent instalments on the 1st day of March and 1st of September in each year. Within six months from the date of

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commencement of his lease, the lessee must take possession of the land, and reside upon it during at least six months of the first year, and nine months in each year for the next four years. Residence may, however, be complied with by the lessee's agent or servant. Within two years from date of the commencement of his lease, the lessee shall fence at least one-tenth of the area contained therein, and within five years from the same date shall fence in the whole of the land, and within 15 years of the said date shall expend upon the land, in prescribed improvements in addition to the exterior fencing, an amount equal to the full purchase money.

The following shall be deemed improvements:—Subdivision, clearing, grubbing, draining, ringbarking, tanks, dams, wells, and any other work upon the land which increases or improves its agricultural or pastoral capabilities: Provided that where the lessee has erected a sheep and cattle-proof or rabbit-proof exterior fence, half its value may be allowed towards the improvements.

If the land is not surveyed, the conditions shall date from the date of survey. At the expiration of the lease, or at any time after five years from the date of the commencement of the lease, provided all the conditions of fencing, residence, and improvements have been complied with, and the said fencing and improvements maintained, and also that the full purchase money and fees have been paid, a Crown Grant of the land shall issue on application.

Conditional Purchase Poison Lands.

(*Section 71.*)

Poison Lease lands are, for the present, withdrawn from selection. The provisions of the Land Act with regard to such lands, which are consequently rendered temporarily inoperative, are as follows:—

Land shall be considered as Poison Land when, in the opinion of the Minister, it is so infested with poisonous indigenous plants that sheep or cattle cannot be depastured thereon. The price is not less than 1s. per acre, payable half-yearly at the rate of one-thirtieth of the total purchase money per annum. The maximum area allowed is 10,000 acres, and the minimum 300 acres. Upon approval of the application (which must be accompanied by a deposit of rent equal to the first instalment), a lease shall issue for 30 years, dating from the first day of the quarter next preceding the date of application. Any person obtaining less than 10,000 acres may make other applications up to 10,000 acres; and if any two adjoin, they may be fenced as one lease. The lessee shall pay the prescribed cost of survey in 10 half-yearly instalments, the first instalment being paid with his application.

The conditions are that the lessee shall, within two years from date of the commencement of his lease, fence at least one-tenth of the land comprised therein, and within five years from same date shall enclose the whole area with a fence of the prescribed description, and during the term of his lease shall eradicate the whole of the poisonous indigenous plants, as prescribed.

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At the expiration of the lease, or at any time during the currency of the same, provided all the foregoing conditions have been complied with, the fencing properly maintained, and the full balance of the purchase money and fees have been paid, and provided that the land has been rendered safe for depasturing cattle and sheep at all seasons, and has continued so for a term of two years, a Crown Grant of the land shall issue.

Free Homestead Farms—160 Acres Free.

Every person who does not already own more than 100 acres of land within the State in freehold, or under Special Occupation or Conditional Purchase, and being the head of a family, or a male who has attained the age of 18 years, may apply for a Homestead Farm of not more than 160 acres or less than 10 acres from lands declared open for such selection.

Every applicant shall make a Statutory Declaration and forward same to the Minister or his agent, accompanied by a fee of £1. Upon approval of the application, the applicant shall receive an Occupation Certificate authorising him to enter upon and take possession of his land for the term of seven years, to be computed from the first day of the quarter next preceding the date of approval of his application.

Within six months from the date of such Occupation Certificate the selector shall take personal possession of the land, and reside upon it for at least six months in each year for the first five years of the term of his certificate. If possession be not so taken, the Occupation Certificate shall be cancelled and the land forfeited, together with all improvements. Residence on selections (under Section 55) adjoining will be deemed to comply with the residence required on the Homestead Farm.

In certain cases of illness, or for other valid reasons, the Minister may waive forfeiture for non-residence upon the land, or authorise absence. Within two years from the date of his Occupation Certificate a habitable house must be erected of not less than £30 in value, or the selector shall expend £30 in clearing, or clearing and cropping, or prepare and plant two acres of orchard or vineyard. Within five years from said date the selector shall fence in at least one-fourth, and shall clear and crop at least one-eighth.

Within seven years the whole must be fenced, and at least one-fourth cleared and cropped. At the expiration of seven years from date of his Occupation Certificate the selector shall, provided all the conditions have been duly performed, obtain a Crown Grant on payment of the usual fees; but, if the conditions have not been effected, the land shall be forfeited.

The Crown Grant may be obtained after twelve months' residence, upon the selector proving to the Minister that the necessary conditions have been fulfilled, and on payment of 5s. per acre, together with the fees referred to in the preceding paragraph. Homestead Farms cannot be mortgaged, except to the Agricultural

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Bank; and can only be transferred to persons who are qualified to hold. The holder of a Homestead Farm may hold other conditional purchase land; and, where residence is a condition, residence on the Homestead Farm, if within 20 miles, will be sufficient.

Residential Leases.

Leases for residential and business purposes, with actual residence, may be granted to any person over 18 years of age, except to Asiatic or African aliens. The area granted is, as a rule, a quarter of an acre. The term shall not exceed 21 years. The rent for the first 11 years is 10s. per annum for residence only. Application must be accompanied by a fee of 10s., in addition to proportion of rent required.

If a business permit is required, the application must be accompanied by a deposit of £5, when the same may be granted at such additional rental as the Minister for Lands may determine. If application should, however, be refused after inquiry, a refund may be made of amount paid, less cost of inquiry. No permission shall be granted for a longer period than five years.

Residential leases may be transferred or mortgaged. They may also be resumed for mining or any public purpose on three months' notice being given in the *Government Gazette*.

Working Men's Blocks.

(Part IX.)

Every person who does not own land within the State in Freehold, or under Special Occupation, or Conditional Purchase, or a Homestead Farm under "The Land Act, 1898," or "The Homesteads Act, 1893," who is the head of a family, or a male who has attained the age of 18 years, shall be entitled to obtain a lease of lands *set apart for Working Men's Blocks*. The maximum area that may be selected by one person is, if within a goldfield, half an acre, or five acres elsewhere; and only one block may be selected by one person.

The price of land is not less than £1 per acre, payable half-yearly, at the rate of one-tenth of the total purchase money per annum, or sooner. Application shall be accompanied by a deposit of half a year's rent at the above rate. Upon approval, a lease shall issue for ten years, dating from the first day of the quarter next preceding the date of approval. The lessee shall, within three months from the date of lease, take personal possession of the land, and reside upon it during at least nine months in each of the first five years of the lease: Provided that possession may be taken and residence performed by the lessee's wife or a member of his family. Within three years from the date of commencement of the lease the whole of the land must be fenced on the surveyed boundaries; and within five years from same date an amount equal to double the full purchase money, in addition to his house and exterior fencing, must be expended on the land in prescribed improvements.

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At the expiration of the lease, or at any time after five years from commencement of the lease, provided that all the conditions of residence, fencing, and improvements have been complied with, and the said fencing and improvements maintained, and also that the full purchase money and fees have been paid, a Crown grant of the land may issue.

In certain cases of illness, or for other valid reasons, absence may be allowed and forfeiture waived.

Definition of Fence.

Fence, wherever mentioned, means any substantial fence, not being a brush fence, proved to the satisfaction of the Minister to be sufficient to resist the trespass of great and small stock, including sheep, but not including pigs or goats.

Pastoral Lands.

(*Part X.*)

Leases of Pastoral Lands within the several Divisions are granted on the following terms:—In the South-West Division, in blocks of not less than 3,000 acres, at a rental of £1 per annum for each 1,000 acres, or part of 1,000 acres; if, however, the land is in that part of this Division situated Eastward of a line from the mouth of the Fitzgerald River in the direction of Mount Stirling, the rental shall be 10s. per 1,000 acres or part thereof. In the Western and North-West Divisions, in blocks of not less than 20,000 acres, at a rental of 10s. per annum per 1,000 acres or part thereof. In the Eucla Division, in blocks of not less than 20,000 acres at a rental of 5s. per 1,000 acres or part thereof per annum. In the Eastern Division, in blocks of not less than 20,000 acres, at the following rental:—For each 1,000 or part of 1,000 acres, 2s. 6d. for each of the first seven years, and 5s. for each of the remaining years of the lease. In the Kimberley Division, in blocks of not less than 50,000 acres when on a frontage, nor less than 20,000 acres when no part of the boundary is on a frontage, at a rental of 10s. per annum for each 1,000 acres or part thereof.

In any case where land applied for is shut in by other holdings, and does not contain the minimum area fixed by these regulations, a lease for a lesser quantity may be granted.

A Pastoral Lease gives no right to the soil or to the timber except for fencing and other improvements on the lands leased; and the lands may be reserved, sold, or otherwise disposed of by the Crown during the term of the lease. Any Pastoral Lessee upon being deprived by the Minister of the use of any land held under Pastoral Lease shall, as prescribed by "The Land Act, 1898," receive fair value for all improvements on the land of which he has been deprived. In the event of the land being selected from his lease under Conditional Purchase, he is entitled to claim from the Conditional Purchaser fair value of any lawful improvements on the land applied for, or which, being outside such land, but comprised in such lease, shall become valueless, or lessened in value, the value of the improvements

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Second-class grazing country, Arthur River.

Pasture Land Pinjarra.

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to be ascertained by arbitration, as prescribed by Subsection 1 of Section 148 of "The Land Act, 1898." All Pastoral Leases expire on the 31st December, 1928.

Reduction of Rent for Stocking.—Any lessee in the Kimberley Division, or in that part of the South-West Division situated to the Eastward of a line from the mouth of the Fitzgerald River in the direction of Mount Stirling, who at any time during the term of his lease shall have in his possession within the Division 10 head of sheep or one head of large stock for each 1,000 acres leased, shall, from the 1st of January, after he shall have satisfied the Minister to the above effect, have a reduction of rent for the remaining years of his lease of one-half of the rent due under this Act.

Penalty for Non-stocking.—A penalty of double rental for the remaining portion of the term of the lease is imposed, except in the South-West Division, if the lessee has not, within five years, complied with the conditions as to stocking.

Boundaries of Pastoral Leases may be amended on payment of a fee of £2.

Permission may be granted to ringbark, in the discretion of the Minister, on application.

Any Pastoral Lessee in the South-West Division, at any time during the continuance of his lease, may apply in the form prescribed by this Act for land within his lease, not being within an agricultural area, or land withdrawn from Conditional Purchase Selection, in one or more blocks, not exceeding three separate selections adjoining his homestead, and not exceeding twenty per cent. of the aggregate quantity held on lease by him from the Crown within such Division; and on approval of the application, a lease shall be granted subject to all the conditions appertaining to Conditional Purchases under Section 55 of this Act, except residence; provided that the maximum area shall be 3,000 acres, and the minimum, except in special cases approved by the Minister, shall be 200 acres. If the land so selected is within a properly fenced enclosure, the fencing of the land upon the boundaries shall not be obligatory: Provided always, that this Section shall not permit any Pastoral Lessee who, prior to the coming into operation of this Act, has taken advantage of a similar provision in the Land Regulations of 1887 to obtain, under this Section and such Regulations, a greater area than 3,000 acres.

Any Pastoral Lessee in the Kimberley, North-West, Western, Eastern, and Eucla Divisions, who shall have in his possession in any such Division at least ten head of sheep or one head of large stock for each 1,000 acres leased, may apply to purchase, in any such Division, any Crown Land within his lease (not being within an agricultural area or a goldfield), in one or more blocks, not exceeding in the aggregate one per cent. of the total area held by such lessee under Pastoral Lease in such division, on the same terms and subject to the same conditions as are prescribed for

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purchase under Section 55, except the condition of residence: Provided that the minimum area in each block shall be 500 acres, and the maximum 5,000 acres; and in no case shall more than three separate selections be allowed to be taken by one lessee.

Pastoral Leases within Goldfields and Mining Districts.

(*Section 102.*)

Any Crown Land within a goldfield or mining district, not required to be reserved for any public purpose, may be leased for pastoral purposes in blocks of not less than 2,000 acres, or more than 20,000 acres, at the same rental as that prescribed for leases in the Division in which the land is situated: Provided that if the land is so shut in by other holdings as not to contain 2,000 acres, the Minister may, in his discretion, grant a lease of such lesser quantity; but in no case shall a lease be issued for a less sum than £1 per annum.

The lessee shall not have the right to select land within such lease under the provisions of the 61st or 62nd Sections of this Act, and, in the event of the land or any portion of it being taken for an agricultural area, the lessee shall not be entitled to more than three months' notice; and in other respects the terms and conditions of such lease shall be the same as those prescribed for Pastoral Leases within the Division in which the land is situated.

Timber Lands.

Subject to this Act and the Regulations made under it, the Minister, and every person he may appoint, either personally or as the holder of a public office, may, on application, and on payment of the prescribed fees, grant the following licenses for any period not less than one month and not exceeding twelve months:—

(1.) A Timber License authorising the licensee to fell, cut, split, and remove any timber growing or standing on any Crown Lands in the locality named in the license for the purpose of logs for sawmills, fencing, shingles, laths, buildings, or railway or other sleepers (but not to cut hewn balks, piles, telegraph or other poles), subject to the right of the Minister during the currency of such license to reserve from cutting over any part of the land in such locality.

A similar license must be obtained by every person engaged only in removing the timber dealt with under a timber license.

(2.) A Woodcutter's or Charcoal-burner's License, authorising the licensee to cut or split firewood from any live or dead wood growing or lying on any Crown Lands in the locality named in the license, and to remove the wood or charcoal cut, split, or burnt.

A similar license must be obtained by every person engaged only in removing the wood dealt with under a Woodcutter's or Charcoal-burner's License.

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No license shall be necessary for cutting, obtaining, and removing dead wood, which is lying on Crown Lands, if for domestic purposes and not for sale.

(3.) A Sandalwood License, authorising the licensee to fell, cut, and remove any sandalwood growing upon any Crown Lands in the locality named.

(4.) A Wattle-bark License, authorising the licensee, during the months from August to December inclusive, or during any of such months, to strip and remove wattle-bark upon the Crown Lands in the locality named in the license.

(5.) A Bark License, authorising the licensee to strip and remove the bark, or to remove the gum from other trees than wattle, the bark or gum of which contains tannic acid, upon such terms as the Minister may think fit, upon the Crown Lands described in such license.

The Minister may, subject to this Act and the Regulations, grant a license to fell and hew timber to be used or exported as piles, poles, or balks. The fees for the several licenses hereinbefore mentioned are as follows:—Timber license, per month per man, 10s.; wood-cutter's or charcoal-burner's license, 5s.; sandalwood license, per month per man, 5s.; wattle-bark license, per month per man, 5s.; bark and gum license, 5s. per month per man; felling and hewing piles, poles, and balks license, £3 per month per man.

Timber Leases.—Timber leases may be applied for under the following conditions:—The maximum area allowed is 75,000 acres, at a rental of £20 per annum for each square mile or fraction thereof, payable in half-yearly instalments. The application must be accompanied by a deposit of a quarter or half-year's rent, as the case may be. The timber lease shall be granted for a term of not less than one year and not more than 25 years: Provided that any person or corporation holding a special timber license or licenses under the Land Regulations of 1887 shall have the right to hold the same under the provisions of this Act, notwithstanding the total area of such special timber license or licenses may exceed 75,000 acres.

A lessee of a timber lease shall, within two years from date of his lease, or within such longer period as the Minister may decide, erect within the area a substantial and fully-equipped sawmill plant, of sufficient power to cut up at least five loads of sawn timber per month for each square mile comprised in the lease, and shall keep the said sawmill plant in good working order during the whole term of the lease. The lessee is authorised to construct railways or tramways on and through his lease.

Timber Tramways.—Special provision is made for granting permission to construct timber tramways through Crown Lands at a rental of not less than £2 per mile.

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Miscellaneous Provisions—Rents, Mortgages, Transfers, etc.

All land rents shall be calculated as from the 1st of January to the 31st of December, and shall be paid half-yearly in advance to the Minister, at the Office of the Department of Lands and Surveys, Perth, or to any Government Resident or Resident Magistrate, or other person authorised by the Minister to receive rents, on or before the 1st of March and 1st of September in each year. All leases applied for during the year shall be granted as from the first day of the quarter next preceding the date of approval of the application; and rent for the current half-year shall be payable as from the date of granting, and must be deposited with the application. If a lessee fails to pay the rent due by him on the 1st day of March or 1st of September in any year, he shall pay the same within thirty days from the due day, together with a fine of twopence in the pound; and if he fails to pay as last aforesaid, he shall pay the same within sixty days from the due date, together with a fine of sixpence in the pound; and if he fails to pay as last aforesaid, he shall pay the same within ninety days from the due date, together with a fine of one shilling in the pound; and if he fails to pay for ninety days, his lease and lands comprised therein, and all improvements thereon, shall be forfeited.

The names of all holders of land on which instalments of purchase money or rents are payable on the 1st of March and 1st of September shall be published in the *Government Gazette* during the months of January and July respectively in each year; and as early as practicable after the first day of March and first day of September in every year the Minister shall publish in the *Government Gazette* the names of the lessees in default, with the respective amounts of rents in arrears.

Mortgages.—Subject to the restrictions contained in Parts VIII. and IX. of this Act, and in the Homesteads Act, 1893, any lease or license under this Act, or under the Land Regulations of 1887, and "The Homesteads Act, 1893," other than license to quarry, and licenses under Part XI., may be mortgaged as hereinafter provided:—

(1.) When any such lease or license is intended to be charged with, or made security for the payment of any sum of money, the lessee or licensee shall execute a memorandum of mortgage in the form or to the effect of the twenty-fifth Schedule of this Act.

(2.) Every memorandum of mortgage must be in duplicate, and one original must be registered in the Department of Lands and Surveys; and in the case of several mortgages of the same holding, they shall take effect according to priority of registration.

(3.) A fee of 5s. shall be payable upon the registration of every such memorandum in respect of every holding comprised in or affected by it.

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(4.) A mortgage may be transferred on payment of the like fee as for registration of the transfer.

(5.) On the occasion of the registration of every mortgage, or transfer of a mortgage, the lease or license must be produced.

Transfers.—Transfers must be accompanied by a fee of £1, and the lease or license transferred must be produced. Only one block can be transferred on one form.

Concessions to Settlers.

To sum up, then, the following liberal concessions are offered to settlers by the Government of Western Australia:—

(1.) A Free Homestead Farm of 160 acres for £1. Conditions: Personal residence for five years, habitable house (value £30) to be erected, boundaries to be fenced, and quarter of the area to be cleared and cropped within seven years.

(2.) Conditional Purchase Lands.—From 100 acres to 1,000 acres, at 10s. per acre, payable in 40 half-yearly instalments, at the rate of 3d. per acre. Conditions: Personal residence for five years, one-tenth of boundaries to be fenced within two years, the whole within five years, and improvements to the full value of purchase money to be made within 10 years. Half the value of boundary fence is allowed in estimating value of improvements. Conditional Purchase Lands may also be selected without the condition of residence, in which case double the value of improvements is required.

(3.) Grazing and Poison Lease lands are for the present withdrawn from selection. The provisions, when operative, are as follows:—Grazing Lands subject to Classification.—Second Class: From 1,000 acres to 3,000 acres, from 6s. 3d. to 10s. per acre. Third Class: From 1,000 acres to 5,000 acres, from 3s. 9d. to 6s. 3d. per acre. Payments extend over 30 years. Conditions: Residence, personal or by an agent. Fencing conditions similar to those relating to Conditional Purchase Lands; improvements to the full value of purchase money to be made within 15 years; half value of external fence may be allowed in estimating value of improvements.

(4.) Land for Orchards, Vineyards, or Gardens, from 5 to 50 acres, from 20s. per acre, payable in three years. Improvements, including fence, to be completed in three years.

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(5.) Surveys are carried out by the State free of charge, excepting Grazing and Poison Lease Lands, when the selector pays half-cost in ten (10) half-yearly instalments. (*See* under 3).

(6.) The Agricultural Bank renders monetary assistance to enable settlers to effect improvements when land has been substantially fenced.

(7.) On a selector proceeding to any district for the purpose of selecting land, the nearest land agent will, free of charge, supply all information, plans, and pamphlets, as well as a guide to conduct him to available land. In the event of an application for land being made, with the necessary deposit, a refund of railway fare may be obtained, if the deposit on land selected is equal to 50 per cent. more than the amount of the fare, and provided the application for refund is supported by a certificate from a Government land agent stating the place from which the selector proceeded for the purpose of selecting.

(8.) The Railway Department grants a special concession in the way of fares and freights for a new selector's family and goods, on production of a certificate of *bona fides* from the Lands Department. Any selector of an area of not less than 500 acres First Class, 1,000 acres of Second Class, or 1,500 acres of Third Class land may obtain from the Lands Department an order for railway tickets and freight for his family, goods, and chattels, from the station nearest his present or late residence to the station nearest the land selected, the amount to be repaid to the department by the selector by bills at 12 and 24 months, with 5 per cent. interest added; until the bills are paid, the land cannot be transferred or mortgaged except to the Agricultural Bank.

(9.) Any new selector residing on his land can arrange passage for his wife and family to this State through the Colonial Secretary's Department.

(10.) Duty on imported stock, etc., owned by new settler, may, in the discretion of the Minister, be paid by the department, to be repaid by owner in a manner to be arranged.

(11.) Agencies, where full particulars as to conditions, areas, and further methods of acquiring land can be obtained, are established at Menzies, Coolgardie, Kalgoorlie, Southern Cross, Cue, Northampton, Geraldton, York, Northam, Beverley, Newcastle, Bunbury, Katanning, Albany, Bridgetown, Busselton, Narrogin, Wagin, Pingelly.

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LAND PURCHASE ACT.

† Sec. 70.—Conditional Purchase Poison Lands.	Sec. 74.—Free Homestead Farms.	Agricultural Land Purchase Act.
10,000 acres	160 acres	1,000 acres.
300 acres	10 acres	...
Minimum price: 1s.	...	Varies.
30 years	...	20 years.
Any time, if the whole of the purchase money is paid, the conditions fulfilled, and the land has been for 2 years safe to depasture stock	12 months	At any time, if purchase money paid and all conditions fulfilled.
Minimum payment: $\frac{1}{10}$ of 1s.	...	Varies.
Eradication of the poison and exterior fencing.	¼ cleared and cropped	...
30 years	7 years	10 years.
...	6 months each of first 5 years after survey	6 months in each of the first 5 years.
$\frac{1}{10}$ within 2 years; the whole within 5 years	¼ within 5 years; the whole within 7 years	¼ within 2 years; the whole within 5 years.

‡ Minimum 300 acres, if adjoining the holding of the applicant.
thdrawn from selection, these provisions are now inoperative

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Occupation of Land in Western Australia on 31st December, 1902 and 1903.

Particulars.	1902.		1903.	
	Area.	Area.	Area.	Area.
	acres.	acres.	acres.	acres.
I.—Absolutely Alienated:—				
Area sold by public auction or other forms of direct sale, or otherwise alienated, up to 31st December...	...	3,517,724	...	3,646,139
II.—In Process of Alienation on the 31st of December:—				
Midland Railway Concessions in process of alienation	2,768,810	...	2,768,810	
Free Homestead Farms	365,468	...	573,565	
Conditional Purchases	1,550,520	...	2,005,298	
Selections from late W.A. Land Company	74,247	...	72,464	
Selections under the Agricultural Lands Purchase Act	48,675	...	62,956	
Special Occupation Leases and Licenses	7,057	...	5,980	
Homestead or Grazing Leases	462,371	...	714,045	
Poison Land Leases and Licenses	1,081,173	...	700,345	
Immigrants' Grants	400	...	400	
Village Allotments	7	...	7	
Working Men's Blocks	130	...	158	
		6,338,868		6,901,918
Total area alienated or in process of alienation on the 31st December	...	9,856,592	...	10,548,057
III.—Leases or Licenses in Force on 31st December:—				
Issued by Lands Department—				
Pastoral Leases	111,165,639	...	134,687,972	
Special Leases	531	...	716	
Leases of Reserves	3,301	...	982	
Selections in Goldfields	2,653	...	2,653	
Timber Leases and Licenses	889,540	...	904,260	
Residential Lots	626	...	626	
Issued by Mines Department—				
Gold-mining Leases	a 32,354	...	b 30,173	
Mineral Leases	34,739	...	33,083	
Miners' Homestead Leases	7,883	...	17,506	
Other Leases	340	...	543	
		112,137,566		135,678,571
IV.—Area neither Alienated, in process of Alienation, nor Leased	...	502,594,642	..	478,362,172
Total Area of Western Australia	...	624,588,800	...	624,588,800

a Exclusive of 236 acres held under Mining on Private Property Act. b Exclusive of 242 acres held under Mining on Private Property Act.

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THE AGRICULTURAL DISTRICTS.

The Central District.

(Inspector S. H. Whittaker.)

The Central District includes all the coastal country lying between Clackline and Fremantle on the north, Collie on the south, Marradong on the east, and the sea on the west. This tract, which embraces about 10,000 square miles, contains many different kinds of soil, especially suited to mixed farming as distinguished from wheat and hay growing, which can be more cheaply, and therefore more profitably, carried on in the Eastern and Southern districts. The vigneron, orchardist, market gardener, and dairyman will find land suitable for intense cultivation, a plentiful rainfall, and facilities for irrigation in this district.

Its chief physical features are the highlands and lowlands in the Darling Ranges, and the plains to the west, stretching out from the foot of the ranges to the Indian Ocean. Both the hills and the plains are fit for mixed farming, although, perhaps, more fruit would be grown in the ranges, and general cropping would have the larger share of attention on the plains. In each case superior grass lands would be the object in view in clearing and cultivating, quite as much as the direct value of the crops. The district is intersected by the Eastern and South-Western railways, and settlers enjoy the advantage of being the nearest producers to the metropolis.

The first section of the district, travelling from Perth along the Eastern Railway to Swan View, is notable for the thriving farms around Guildford, on the Swan River. This locality, which was one of the first settled, presents charming views of arable fields, orchards, vineyards, and superior homesteads, occupying all the vantage points above the stream. From Midland Junction the line ascends into the hills, thence to Clackline the country, wherever it has been turned to account, being almost wholly devoted to fruit or sheep. Ringbarking, the destruction of "blackboys"—the local name of the grass-tree—and fire prepare the hilly land for sheep. After a fire the feed, fertilised by the ashes, springs rapidly. Sheep thrive on these uplands, particularly the crossbred, but the native dogs or dingoes and the York Road poison have to be guarded against. The poison shrub is easily grubbed, as it only grows in patches. By wire-netting the boundary fences, the wild dogs, which are only found where settlement is sparse, are kept out of the paddocks.

Wine and Fruit.—At Baker's Hill, on the Eastern Railway, and on a deviation about Darlington, Smith's Mill, and Mundaring, there are some vineyards and orchards that testify to the great advantages of the iron-impregnated soil of the Darling Ranges for the production of wine and fruit. In the opinions of experts, grapes grown on ironstone gravelly loam, which is the chief formation of the ranges, are not to be surpassed for wine-making or for the peculiarly brilliant colour of the wine.

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The Kalamunda Railway, which branches from the Eastern line at Midland Junction, rises by zigzag sections to the top of the Darling Range, which command superb views of Perth, Perth Water, and the ocean. The railway, first constructed as a private timber line, attracted settlers, whose strawberry gardens, orchards, and vineyards are now the mainstay of the district. As the forests were gradually cut out the gardeners increased, so the Government acquired the line, thus giving a further impetus to the cultivation of the fertile valleys that vein the hills right through their course. Kalamunda has also since become a popular holiday place and sanatorium, the mountain air being strongly recommended by medical men for sufferers from phthisis.

The Jandakot Agricultural Area, which lies in close vicinity to the city of Perth and the port of Fremantle, conveniently situated between the South-Western railway and the ocean, is one of the chief market-gardening districts of the State. Here are found the soils and water which bring vegetables quickly to maturity. By using the drier slopes in winter, and the beds of the alluvial swamps in summer, the crops come in succession all the year round. Some of the swamps are being drained, while others are only planted at midsummer, after the sun has evaporated the water which constituted them lakes in winter.

Jandakot, comprising 36,000 acres, was surveyed about 12 years ago. All the blocks have been taken up. The first section of the railway through the Area, connecting Fremantle with the South-Western Railway, has been authorised, and its construction will shortly be commenced. The main thoroughfare, Forrest-road, is also being laid with jarrah to facilitate the cartage of produce and firewood to Fremantle.

The Serpentine Area, which is 34 miles from Perth, on the South-Western Railway, contains 13,980 acres, and is subdivided into 85 blocks, all of which have been selected.

The Coolup Area, comprising 50,000 acres, is the northern portion of what was originally known as the Harvey Area, and commences 56 miles from Perth. The Area is cut by the South-Western line into East and West Coolup, the former having most of the older settlers, all of whom have excellent properties utilised for mixed farming. These properties are pleasing examples of what can be done by energy, perseverance, and industry, by which have been amassed sheep farms, orchards, arable fields, comfortable residences, and extensive out-buildings. As regards West Coolup the completion of the Government drainage scheme will give a great impetus to the neighbourhood.

In its natural state the Coolup Area grows coarse tussocky feed. Ploughing replaces the coarse herbage with a sward of tender and nutritious native grasses, which can, of course, be further improved by sowing clover and other seeds. About here the clearing is done more to produce beef, mutton, wool, and milk than for the growth of hay and wheat.

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The Harvey Area, of 43,000 acres, is being considerably improved. It largely consists of potato ground, which has been in keen demand. It will in all probability become the centre of the best type of dairy farms, namely, those upon which most of the food is grown for the stock. The district is a new one, but it is being rapidly developed.

The Uduc Agricultural Area consists of 12,000 acres, and is situated about five miles south-west of Cookernup. On account of drainage questions, the unsold blocks have been temporarily reserved. The country near the Harvey river is composed of chocolate soil. Oranges are being largely planted at Korrijikup, a private estate in the neighbourhood, where it has been proved that citrus, as well as other fruits, are well suited to the locality. Beyond the area, to the westward, there are chains of swamps in which, in the dry months, potato cultivation is carried on, potatoes being one of the most profitable crops of the South-West.

A dairying and pig-raising district, is the description that any farmer would give of the land between the Harvey and Collie rivers, whether in the hills or on the plains. Peas, vetches, barley, maize, sorghum, and lucerne are here readily raised, and there is plenty of fresh water available; the main railway cutting, as it does, north and south through a tract of narrow country, would bring most of the dairies within seven miles of the line, and within ninety of the metropolis. Here, therefore, are conveniently situated the chief essentials for the speedy development of a dairying industry.

Dairying and pig-keeping go naturally together where irrigation is readily possible, as is the case on the South-West plains, upon which is emptied the drainage from the hills. This surface water is readily diverted into canals, cut to drain the country. In summer these canals can be opened so as to irrigate the cultivated fields to the great benefit of the fodder crops. The advantage of the winter's drainage system being available for irrigation purposes in summer is one of the greatest recommendations of the South-West.

On the plains there is vacant land in the neighbourhood of Lake Clifton and Lake Harvey, where potatoes are one of the principal crops.

Close Settlement at De Hamel.—At De Hamel, below Waroona and Drake's Brook, close settlement has been introduced under a system which is a new departure in this State. A number of settlers, chiefly persons tired of the life on the goldfields, have bought small blocks on the instalment system of deferred payment. They are advanced the cost of clearing their land, which thus keeps them in remunerative employment until returns begin to come in. These advances are added to the purchase money, the whole being paid by small instalments before the blocks become freehold.

Canning Hills to North Dandalup.—So far the plains of the Central District have only been dealt with. Leaving Perth, and travel-

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ling south through the Darling Range to the eastward of the plains, country will be passed through above Cannington, Kelmscott, Armadale, Mundijong, and Serpentine dotted with the homes of gardeners from the higher ground right down to the South-Western Railway below the foothills. The rivers Canning, Serpentine, and Dandalup have their sources in the mountains, and their courses have been carefully followed by land seekers, who have already occupied many of the best spots. It is not until Pinjarra and the River Murray are reached that any large extent of Crown territory in the hills is open for selection, as the terms of the old timber concessions granted in the country nearer Perth will not admit of it. Along the valley of the Upper Murray, however, there are about 20 miles of river frontage belonging to the Crown, and country extending north, south, east, and west through the ranges still remains public property, ready to be settled so soon as made accessible.

Upper Murray.—The Murray, formed by the junction of the Hotham and Williams Rivers, near Marradong, is one of the principal rivers in the State. For many miles it follows a circuitous but mostly westerly course through the Darling Ranges, in places forming long, broad reaches of miniature lakes; in others tumbling in cascades from rock to rock in many charming variations of river scenery. Until the jarrah forests on the table lands attracted the attention of sawmillers a few years ago the Murray country, owing to the difficulty in reaching it, was only known to stockmen. Then the jinker tracks of timber-cutters began to open up the district. The mill-owners made a railway from Waroona to the tableland, and settlement followed in its wake so soon as it was found that by its means roofing iron, fencing wire, etc., could readily be got to the top of the range. Promising orchards were then planted, and the prospects of the district looked bright. Among the attractions of this locality are an ever-flowing river, numerous permanent brooks, valleys, and flats of red and black loam, swamps, suitable for summer dairying purposes, naturally drained as they are into gullies, and sawmill camps which provide a market close at hand for the produce of the settlers. There are also good grazing areas, but as the country is adapted for close settlement and intense cultivation, the taking up of large blocks is discouraged by the Lands Department.

Land Open for Selection.—Garden and other conditional purchase blocks are open for selection all through the Darling Ranges along the Eastern and South-Western Railways, where a small area well employed suffices for the making of a good living. The hills should be settled by men who look to fruit, vegetables, root crops, vines, milk, butter, bees, and poultry for their returns. Poultry farming is an industry that can be entered upon with confidence in Western Australia, especially in the highlands. The perfect drainage, the abundant supply of green feed, and pure water, are very conducive to the health of the birds, so that with careful management disease is unknown. The Customs returns of

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eggs and poultry imported from the Eastern States show that there is always a good demand at remunerative prices for the local article.

Cost of Improvements.—The cost of clearing in the Central District will usually range from £4 to £10 per acre; for a thickly-timbered gully the price may possibly mount up to £20, but in this case the site will be exceptionally valuable for oranges, lemons, maize, and vegetables in the summer, the richest alluvial ground being nearly always irrigated by gravitation from springs. Big trees can be and often are ringed and left standing, the crop being grown between them. Partial clearing of this nature can be done for £2 per acre.

Fencing with jarrah posts and six wires is worth from £28 to £30 per mile, according to the class of country. Dog-proof netting-and-wire fences cost from £40 to £45 per mile.

Ringbarking ranges from 1s. 3d. to 2s. per acre; blackboy chopping and the felling of undergrowth from 3s. to 5s. per acre.

Busselton and Bridgetown Districts.

(By Inspector G. Buchanan.)

The Busselton and Bridgetown District extends along the coast being further bounded by a line starting from a point on the coast immediately north of Bunbury and running due east for a distance of 50 miles, and thence directly south 120 miles to the sea. A glance at the map will show that the territory includes all the extreme south-west portion of the State.

Railways, Harbours, and Shipping.—The Collie, Preston, Blackwood, Warren, and Sussex Districts are included in this area, which is traversed by the Collie, Bridgetown, and Busselton railway lines feeding the main South-Western Railway, and carrying timber for shipment at the ports of Bunbury, Busselton, Quindalup, and Port Augusta; it may be safely predicted also that produce as well as timber will be carried later on when the agricultural and fruit industries come to be better developed. Meanwhile the timber ships are a very great accommodation to the settler, bringing in fertilisers, roofing iron, wire, and other heavy requisites at lower freights than would otherwise be obtainable, and at the same time providing a ready market for his produce.

Resources of the District.—The timber industry of the jarrah and karri forests is one of great importance, giving employment to a large number of men and teams, and providing an active local market for produce and fodder. There is, in addition to that part of the population which is engaged in the timber trade, also a tin and coal-mining population that adds its contribution to the local market.

Physical Features.—A distinctive feature of the district is the number of rivers and brooks which it contains. These are not permanent streams, but supply water in chains of pools and

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"soaks" in the driest season. The coast lands are dotted with swamps. The South-West District is undoubtedly the best watered portion of the State, and where it is necessary to have recourse to well-sinking, which so far has been of rare occurrence, a shallow depth will usually meet all requirements.

The Coastal Flats.—The South-West largely consists of mountainous country. Between the ranges and the coast there is a belt of almost flat country of variable character. The water frontages are as a rule composed of a rich loam. The quality of the soil is usually indicated by its timber. Where red gum and blackboys flourish, the land will be found to be of excellent quality, although it may be covered with a coarse, rushy, and scrubby growth, due as a rule to bad drainage. When drained and cultivated, the ground generally proves to be much better than it looked in its virgin state. When banksia and Christmas tree supersede the red gums and blackboys, the ground becomes poorer, but rich swamps usually intersect this class of country. These swamps dry up in December, and can be then planted with potatoes and other vegetables for the autumn market. Where dairying is carried on, the swamps are especially valuable for growing fodder crops in the summer when grass is dry.

In the Hills.—The hilly region of the district comprises by far its largest part. The hills tapped by the Collie and Bridgetown railway lines are heavily timbered with jarrah, red gum, and blackbutt, together with occasional belts of white gum and blackboys. In the vicinity of the Warren River there are magnificent karri forests. The best soils are chocolate loams in the valleys, which merge into ironstone loam and gravel on the hills and tablelands.

The Cost of Clearing.—The cost of clearing is an important question to the intending settler. It varies, but, speaking generally, the better the land the denser of course the forest, and the greater the expense of clearing it. Probably the most open part of the district is the Upper Blackwood country, which lies eastward from Bridgetown towards Kojonup. In this locality the timber is mostly scattered red and white gums and clustering blackboys. For from £2 to £4 per acre a large area has been cleared for wheat and oats, leaving, after ringbarking them, the larger trees standing. The average outlay may be fairly put down at £3 to £4 10s. per acre. Away from this somewhat lightly timbered belt, the cost of clearing rises to from £5 to £8 for partial clearing suitable for general cropping, but to clear thoroughly for an orchard, the expense would be about twice as much. A great deal depends on whether the timber has been ringbarked for any length of time or not. When dead and dry, fairly heavy forests may be grubbed for £8 to £10 per acre, whereas, in the green state, half as much again would have to be paid. The use of explosives, of which gelignite is generally preferred as giving the most satisfactory results, greatly cheapens the cost of dealing with large timber.

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Different Methods of Clearing.—Many devices have been tried for cheapening clearing. In one case bullock teams uproot the trees with tackle and haul the timber together for burning. In others, the ringed trees are felled, and the trunks rolled over on to the stumps and fired, so that the whole of the tree is burned, and the clearing completed in the one process, the roots burning out with the stump below the ploughing depth.

Building and Fencing.—Although the heavy timber is difficult to clear, some compensation is afforded by its providing on the spot a plentiful supply of fencing and building material. Jarrah splits readily into slabs for substantial outhouses, stables, etc., and also is very durable for fencing posts.

The settler who intends to keep sheep, which are more profitable than cattle on small holdings, will do well to enclose his holding with dog-proof fencing. The wild dog, *canis dingo*, is somewhat numerous in the remote parts of the district, and even visits the more settled areas occasionally. The fence that gives the greatest satisfaction, at the least cost, in checking the dingo, is one composed of 3ft. netting and three wires. The netting is laced to two of the wires at the top and bottom, and the third wire is above the netting. The cost of the material and erection of a fence of this description will be from £38 to £42 per mile, according to the nature of the country and the immediate supply of timber. A good stock-proof post and two-rail fence can be put up for £28 per mile, but except for stockyards, post and rail fences are almost obsolete, costing as they do more than wire fences, and being also more liable to damage by fire.

How to use the Land.—From the question of clearing to that of obtaining profitable returns, is a very natural sequence. The cost of clearing being so high, it follows that men of small means cannot hope to clear large areas, and it, consequently, is imperative that crops yielding a fair profit per acre must be grown, and then the land that is not cleared in the first place can, while intense farming on a limited area is being carried on, be gradually improved by ringbarking, stocking, the decay of timber, and its reduction by bush fires. At the present time the heavily-timbered country is used principally for stock-raising and fruit-growing; if to these be added dairying, pig breeding, and onion and potato cropping, the most profitable lines on which this country can be worked will probably have been indicated. Although, of course, this kind of land is suitable for cereals, still most of it is too costly to clear for that purpose alone.

Stock and its Prices.—Far more stock per acre could be carried in this district if more of the country was ringbarked. Whether the district is better suited for sheep or cattle is an open question; both do well, but sheep are at present more in favour, as unless dairying is carried on, sheep always give a more ready and regular return than cattle.

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It is difficult to determine the average prices of stock in this district, as there are no regular auction sales to furnish a guide. As a general rule, stores are not sold, because breeders having plenty of country generally hold on to their young stock until they are fit for the butcher. Fat stock are always in good demand, and prices usually range between 4d. and 5d. per lb. of the estimated weight. During the autumn and winter, when fat stock become scarce, the prices advance, and buyers have to give as much as 6d. per lb. for sheep fit for slaughter. It is rather difficult to obtain store sheep in this district, and they are usually purchased off the shears from station-owners in the Plantagenet district at an average price of 10s. per head. Horses are in keen demand, especially heavy draughts suitable for the timber industry, which are worth up to £50. Good hacks, delivery sorts, and buggy horses are always worth from £12 to £30.

Cultivation of Fruit.—The importance of fruit-growing, in comparison with the other branches of cultivation in this district, will appear from the fact that, of a total area of 17,654 acres cultivated in 1903, no less than 2,926 acres were under vines and fruit trees. This area represents, roughly, one-quarter of the whole acreage under orchard cultivation in the State, and denotes the proved excellence of the district for fruit, including grapes and oranges. In the hilly and colder parts these two fruits must be planted with caution, but it is there that apples, pears, plums, and peaches, and such small fruits as gooseberries, raspberries, strawberries, and currants thrive best. In apple production this district promises to become to Western Australia what the Huon Valley is to Tasmania, and when the time comes for exporting fruit, situated, as it is, close to the western seaboard of the continent, and having excellent ports for shipping, it will enter the trade with advantages far ahead of any other part of the Commonwealth.

Climate and Rainfall.—The climate and rainfall are excellent in this part of the State, as being situated about the 34th parallel of south lat., and bounded on the north, west, and south by the sea, the climate is naturally mild, and the rainfall copious. The coastal towns of Bunbury and Busselton have for a long time been favourite summer resorts of the health or pleasure-seeker. The air of Bridgetown (about 60 miles from the coast, and near the centre of the district) has been described by the medical profession as a restorative. In the interior of the district frosts occur between June and August, and even a few light falls of snow have been recorded; but such instances are rare. The average rainfall for the whole of this large district exceeds 30 inches, the average number of rainy days being about 130. From this it will be seen that only a comparatively short period of the year is rainless.

Average Yields.—The average yields of the South-West compare favourably with those of other districts. Last season wheat, which is not largely grown, returned 10 bushels, and oats, which are much more extensively sown, yielded an average of over 17 bushels per acre. Barley gave only about 12 bushels, the previous year's

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yield having been over 16 bushels; hay yielded one ton, and potatoes three tons per acre. These are only, however, average yields, as much larger crops are gathered when the land is properly farmed; returns of two tons of hay, five to eight tons of potatoes, and 30 bushels of oats being of common occurrence, whilst apple trees, in full bearing, yield four tons of fruit per acre.

Land open for Selection.—Small patches of land intersected by the Busselton and Bridgetown railways are still open for selection, but large areas are difficult to obtain. Near Busselton the country is flat and somewhat sandy, running back to ironstone hills and jarrah forests. The hilly land along the Bridgetown line still available for selection consists mainly of pockets suitable for orchards. A guide, whose headquarters are either at Bunbury or Busselton, will take visitors out to select land, free of charge. A prior appointment with the guide should be made by selection parties, in order to prevent any possible delay.

Near the coast line, within from 15 to 30 miles of Busselton, there is available a large extent of excellent country for the grower of fruit, potatoes, and onions, and also the dairyman, whose business is greatly assisted by the Busselton Butter Factory, which is a regular customer for milk and cream.

The excellent roads lately made to the Yallingup and Margaret River Caves are of much benefit to settlers. The Karridale mail-coach runs through the district three times a week, conveying mails and passengers.

Blackwood River Country.—The extensive tract of country south of the Bunbury-Bridgetown railway, and intersected by the Blackwood River, is practically uninhabited, except the water frontage, which, as far as the junction of the river with St. John's Brook, has been largely taken up. On the western side of the river the country is densely clothed with jarrah, and on the eastern side the land is particularly hilly for some distance from the stream, when a tableland is reached, which carries some of the most magnificent specimens of karri and jarrah trees that are to be found in the State. An inspection of this forest can best be made from Balingup, on the Bridgetown line, or else from Busselton; the former being the nearer.

Schools and Halls.—Busselton, which is a town of some importance, possesses churches, schools, and other educational institutions. There are also schools at Newtown, Quindalup, Karridale, and Boyanup, and Agricultural Halls at Newtown and Quindalup.

The Lower Blackwood, situated 27 miles from Balingup, is the centre of the district, and possesses a post-office, school, and hotel. A mail cart leaves Balingup for the Lower Blackwood every Saturday. The country in the neighbourhood of St. John's Brook can be most conveniently reached from Kirupp, or Mullalyup, on the Bridgetown line. There is no land office or land guide in this

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section, but every information relating to it can be obtained at either Bunbury, Busselton, or Bridgetown.

Blackwood and Warren Districts.—The Blackwood and Warren Districts offer excellent, but, consequently, heavily-timbered land, with, unfortunately, the further disadvantage that the best parts are at present some distance from a railway. Patches of good soil, but only, it is be regretted, in small areas, can be obtained closer to the railway. As a compensation, however, for these drawbacks, the richness of the land in the Blackwood and Warren Districts is unsurpassed. Bridgetown, the terminus of the railway, is the commercial centre; and good roads connect it with the various outlying settlements. From the Bridgetown Land Office the guide drives selectors out to likely locations, devoting, if necessary, four days free of cost to each applicant. Those who prefer to personally equip themselves for looking at the country, can get a saddle horse for 5s. per day, or a horse and gig for 10s. per day. Rugs should be carried for camping out.

At the Warren, which is a cool and splendidly watered district, 20 to 58 miles from Bridgetown, there is plenty of room for settlers. The clearing is lighter in the neighbourhood of the Perup River and Yerraminnup Brook, and the price of land is here as low as £2 per acre. The soil is excellent, but along the river there is found, unfortunately, heart-leaf poison to be eradicated; this, however, the new settler will early learn to identify.

East of Bridgetown.—The country traversed by the Blackwood River east of Bridgetown, for a distance of about fifteen miles, consists of heavy forest growing on inferior ground. Beyond this, the country becomes more open and of better quality, being a light loam sparsely timbered with red and white gum and blackboys, divided by gravelly jarrah ridges; this extends to Kojonup and the Gordon River. If compared with the rainfall on the coast, the seasons are relatively dry, but there is always enough rain for mixed farming and grazing.

Roads, Education, and Mails.—Settlement has progressed so satisfactorily in the South-West that there are now roads in all directions; schools at Bridgetown, Greenbushes, Balbarrup, Boyup Brook, and Dinninup; post and telegraph offices at Bridgetown, Greenbushes, and Balbarrup (telephone). There are also regular mail services from Bridgetown to the Upper Blackwood, *via* Boyup Brook, Dinninup, and Winnejup, the mailman delivering and collecting letters at settlers' houses *en route*.

Collie-Narrogin Area.—A railway is about to be constructed from the Collie Coalfield to Narrogin, on the Great Southern line; and in anticipation of the construction of the line there has already been an active demand for land in its neighbourhood. The country in the immediate vicinity of the Collie is to a large extent jarrah forest, where a considerable trade in timber is being carried on. There is also some blackbutt forest country, where the soil is

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exceptionally rich. The country to the east of Collie is of a more open character, very suitable for wheat-growing and mixed farming. There is a Land Office at Collie, and the guide shows intending settlers round at the public expense, so long as they do not require more than four days of his services.

Collie has a population of about 1,500. As it is the only coal-field at present discovered in the State, it is likely eventually to become an important centre.

The Avon District.

(Inspector E. H. Gliddon.)

The Avon District contains about 3,500,000 acres, about one-third of which is freehold, or has been sold on conditional purchase. The chief towns of the district are York, Northam, and Newcastle, situated in the valley of the Avon River. Until a few years ago the Avon country was the chief producer of cereals in the State. Now, however, settlement has stretched over 60 miles east and 70 miles north of the Avon, and the new areas are being vigorously farmed and with the best results.

Purchased Estates.—A number of large private estates, acquired in the early days of Western Australia, have hitherto proved a bar to closer settlement; some of these situated near York, Northam, and Newcastle have, however, lately been repurchased by the Crown, and having been subdivided and thrown open for selection, are readily being taken up. There are, however, still many large estates lying comparatively idle.

Crown Lands Open for Selection.—In the Avon District there are about 2,000,000 acres of first, second, and third-class land available for selection. Much of this country is what is marked on departmental maps as "sand plain," although, perhaps, sandy loam would be a truer designation. At any rate, this so-called sand has been proved to be well able to grow cereals when a light dressing of fertiliser is given to it. The experiments in cultivating "sand plain" have indeed proved so successful, that a large area of this kind of country is being selected, and chiefly by old settlers, who have hitherto used it only for grazing.

Tamar Thicket Country.—The value of tamar thicket land, so called from its being the home of the tamar (*Macropus eugenii*), a small species of kangaroo, is only now being demonstrated. After having been neglected for many years, "tamar land" has produced the best of wheat; and its capabilities in giving quick returns at a very light cost for clearing is a recent discovery in the Avon district. The land is a light loam, covered in its natural state with a thicket which can be easily rolled down, and when burned the plough can at once get to work. 400 acres of wheat on tamar country, that had hitherto been regarded as useless by the old settlers, reaped an average of 20 bushels per acre. In the same neighbourhood, four acres of "tamar land" ploughed in "the dry"

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Wheat land, Meckering.

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yielded twenty-eight bags of wheat. Another satisfactory trial of a similar kind was made a few miles further north, the return being 20 bushels per acre.

Tamar land can be found all over the Avon District, fringing the gimlet and salmon gum forests. These forests mark the heaviest, richest, and most lasting soils of the eastern portion of the agricultural districts, but the lighter soils of the jamwood country prove the better when the rainfall is also light.

Hints to Selectors.—In Western Australia it is necessary to have some local knowledge in order to properly estimate the value of the different classes of ground. Take, for instance, the Meckering agricultural area, nearly the whole of which is of a light sandy character, yet profitable crops have always been grown there, and in 1903 the average yield was about 23 bushels of wheat and 35 cwt. of hay per acre. Examples may be given of even better results, such as an average of 26 bushels per acre off 800 acres at Cunderdin and Meckering, while some of this land yielded 40 bushels per acre; two tons of hay per acre were cut off 500 acres at Grafton farm, near Meckering; and at Cuttening, seven miles east from Kellerberrin, three tons of hay were cut per acre. About Dangin there are still large areas of first-class land available, as also near the Wyening Mission Station.

Fencing.—A fair price for a six-wire fence, posts nine feet apart, in the Avon district, is 6s. 6d. per chain.

Water Supply and Water Conservation.—In the Goomalling district, which has been rapidly taken up within the last few years, a great deal of attention has been given to water supply. The Government cut a large central dam for the use of the community, which proved of great service in opening up the district. Since then, however, the settlers have provided for their own wants by sinking wells, it having been found that good water, and plenty of it, can usually be struck at about 23 feet.

Although, as a rule, water can be obtained throughout the district by sinking wells, at the same time much can be done by the excavation of dams for conserving the rainfall.

Along the Yilgarn railway line the Goldfields Waterworks Scheme is a great boon to settlers, who can tap the pipe by paying from 5s. 6d. to 6s. 6d. per 1,000 gallons, a charge which is much lower than that of 8s. 4d. made in the rural districts of South Australia, for a similar privilege.

Rainfall.—A varying rainfall is naturally experienced over so large an area as is contained in the Avon district, its eastern or interior portion being, as would be expected, much drier than that nearer the seaboard. To the west of Meckering the annual rainfall is from eleven and a half to twenty inches; whilst towards Yilgarn about eleven and a half inches are usually registered. Ten inches, if well distributed, have been found to be quite sufficient for successful farming.

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Climate.—A particularly agreeable winter climate is succeeded in summer by hot days but cool nights; the district is remarkably healthy at all seasons.

Mixed Farming.—The country carries stock well in the forest areas after ring-barking. The pastures among the salmon gums and York gums are much more nutritious than those which grow on the lighter soils. So far the number of stock kept has been quite insufficient, as is shown by the high prices obtainable, viz.:—Sheep, 16s. to 20s. per head; cattle, £10 to £15; pigs, £4 to £5.

Fruit and vegetable-growing, and also dairying, can be undertaken under favourable conditions in the western portion of this district.

Land Offices and Guides.—Land offices are open at Northam and York for the receipt of applications, etc. Plans of any portion of the district can be obtained. Guides will convey selectors from York, Northam, Newcastle, and Goomalling to any part of the district.

Agricultural Halls and Churches.—Agricultural Halls, which are also used as places of worship, and for purposes of recreation, have been built at Kellerberrin, Goomalling, Norman Area, Buckland, Jennapullen, Jurokine, Wongamine, Meckering, Greenhills, Grass Valley, Quellington, Mombekine, and Culham.

Churches of various denominations are established at York, Newcastle, Northam, Culham, and Burges. The school-houses, as well as the Agricultural Halls, as before mentioned are used for religious services in some of the smaller townships.

Schools.—State schools are built at the following places:—Newcastle, Clackline, Culham, Jumperding, Northam, Cunderdin, Tammin, Meckering, Grass Valley, Quellington, Mombekine, Jurokine, Greenhills, York, Burges' Siding, Doodlakine, and Daudabin; whilst Greenhills Agricultural Hall is used for a like purpose.

Railways.—The Avon district has several railways, the two principal ones being the main goldfields line from Perth to Kalgoorlie, and the Great Southern from Perth to Albany. Newcastle has a branch line from Clackline; there is another from Northam to Goomalling, and a third to Greenhills from York.

Cost of Clearing.—The cost of clearing varies, according to the description of the timber, in different sections of the district. An approximate scale of prices may, however, be given:—York gum and jam, 30s. to 40s. per acre; mixed forest, viz., salmon gum, gimlet wood, and morrell, 25s. to 40s. per acre; gimlet wood (which burns readily), 20s. to 30s. per acre; salmon gum, 25s. to 30s. per acre; salmon gum and gimlet, 30s. per acre. The heavy red gum and jarrah forest in the Darling Ranges costs from £10 to £20 per acre to grub for orchards. Tamar thicket can be rolled down and burned for 10s. per acre.

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The Beverley-Pingelly District.

(Inspector A. B. Fry.)

The Great Southern Railway divides this district into eastern and western divisions, about 40 miles and 30 miles wide respectively. Within these boundaries there are approximately 1,000,000 acres, comprising a great variety of country—rough hills excellent for grazing, rich flats for cereals, and undulating country admirably adapted for vines, fruit trees, and orangeries.

Twenty-five miles to the eastward the average rainfall becomes gradually less, but occasional summer thunderstorms occur. Belts of salmon gum and white gum country are intersected by sand plains, where the nutritious shrubs are of the greatest value for grazing sheep during the last four months of the summer. Of the 1,000,000 acres in this fertile district, not more than 300,000 acres have been sold.

Soils and Timber.—The various kinds of timber disclose different grades of land, which are graded under the Land Act as first, second, and third class. The first-class lands are timbered with salmon gum, white gum, York gum, morrell, mallett, and jams; the heavier the timber the better the soil. The salmon gum grows in good stiff soil, with a clay subsoil, the ideal land for wheat-growing. This forest country, in its natural state, produces no grass, but within a year after ringbarking a remarkable change occurs. Grasses of various kinds spring up, and in two years the settler can rely upon having excellent pasturage for stock. Till then he should have only his working horses.

The second-class land is sparsely timbered with the same kind of trees as the first-class lands, but the salmon and white gum, etc., are intermixed with each other in scattered groups, instead of forming each a forest of its own sort of timber. These second-class soils are lighter than those of the first-class, and there is fair feed even before the country is ringbarked. It is not considered desirable to ringbark all the jam trees, as grass will grow right up to the butts, protected in summer by the thick foliage. It has been proved, where the rainfall is light, that the second-class ground, when fertilised, will yield more heavily than the first-class lands, which require a good soaking to enable them to assert their superiority.

The third-class land is commonly called sand plain, which, however, is a misnomer, as to the uninitiated the name would imply plains of bare sand or desert, whereas these plains are always green, being covered with shrubs which form good feed for stock, and are in spring-time decorated with the blossoms of many-coloured flowers. These plains vary in quality; the best of them are now being cultivated, and give good results if a light dressing of fertiliser is used; but it is for grazing purposes in the autumn that this class of country has, until lately, been most esteemed.

Cost of Improvements.—The cost of clearing for cereals varies from £1 to £2 10s. per acre; for orchards, vines, or oranges, from

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£2 10s. to £4 10s. Ringbarking is usually done under contract, at from 1s. 3d. to 1s. 6d. per acre, the latter price including the cutting of undergrowth. In the second year, after ringbarking, grass appears, and by burning this off every few years at the end of the season the land gradually becomes clear enough to run stock to advantage.

Standard six-wire fencing, posts not more than 12ft. apart, costs from £26 to £28 per mile.

Rainfall.—The average rainfall of the Beverley District is about 15in., but it is as high as 24in. in the western portion, diminishing gradually thence to the eastern boundary.

Wheat Yields.—In 1903-4 the average wheat yield was 17 bushels per acre; in several cases the returns reached 45 bushels per acre.

Progress of Settlers.—During the last few years great progress has been made in the district; settlers who began seven or eight years ago with little capital are now the owners of farms of from 1,000 to 2,000 acres. A noticeable feature, too, and a certain indication of prosperity, is that all the older settlers are enlarging their homes and substantially improving their outbuildings, whilst new settlers are rapidly taking up country 20 or 25 miles from the railway.

Principal Centres.—Beverley, the chief town in the district, has the River Avon flowing through it. The population is about 400. A branch of the Western Australian Bank, several churches, schools, court house, council chambers, hotels, stores, and a flour mill are among the buildings.

Around Beverley there are numerous settlers who work in the town, but who at the same time grow fruit or vegetables on their Suburban Blocks of from 5 to 10 acres.

At Mt. Kokeby, which is the nearest township to the country round County Peak (now being rapidly taken up by newcomers), there are already a school, a store, and a blacksmith's shop.

Brookton has lately made the most rapid progress of any settlement between Beverley and Pingelly. Twelve months ago it could hardly have been described as a hamlet; whilst now it is a small town, having a church, school, hotel, and many comfortable residences. When the suburban lands are surveyed and sold, another impetus will be given to Brookton, which has the advantage over Beverley of having near it none of those large estates which are at present used almost entirely as sheep runs. The Brookton country is generally in the hands of small farmers, and it forms a good example of the benefits which result from close settlement.

Pingelly is next to Beverley in importance, possessing a branch agency of the West Australian Bank, post and telegraph office churches, school, hotel, coffee palace, flour mill, and two stores.

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Cereals grown at Beverley.

Sheep, 22 miles East of Narrogin.

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The Beverley-Pingelly district is a well watered country, the River Avon and its tributaries traversing it from south-east to north-west. There are springs in many places, and fresh water can be obtained almost anywhere by comparatively shallow sinking.

Prices of Stock.—At Beverley, where a monthly sale of stock is held, draught horses range from £25 to £45. Light horses fetch from £15 to £25 Store sheep are worth from 10s. to 16s.; fats, 20s. to 30s. Cattle, stores, £8 to £10; fats, £12 to £17.

Land Offices.—The Chief Land Office is at Beverley. The Land Agent attends the branch agency at Pingelly twice a week.

KATANNING-CRANBROOK DISTRICT.

(Inspector J. A. HALL.)

The Katanning-Cranbrook District is bounded on the north by the Katanning-Bridgetown road, on the south by the Cranbrook-Blackwood road, on the east by the Salt River and on the west by 116deg. 30′ E. longitude. It has an area of about 5,000 square miles, and contains land suitable for agricultural, horticultural, and pastoral purposes.

Description of the Soils.—The land is of mixed qualities, varying from rich chocolate loams and heavy black sand, suitable for wheat and fruit-growing, to light sandy and gravelly soils, well grassed and adapted for sheep and cattle-raising.

Varieties of Timber.—There are several varieties of timber, white, red and flooded gum, jam, jarrah and sheaoak, stinkwood, marlock, together with an undergrowth of blackboys. The settler has plenty of choice for fencing material, as neither jam, jarrah, nor white gum are affected by decay or white ants.

Land open for Selection.—Close to the Great Southern Railway, most of the land has been selected, and there is now a large area under cultivation, but about ten miles distant there is plenty of good land still available.

Around Kojonup there is land open which is well adapted for grain-growing, and to the west of Kojonup there are hundreds of acres in the jarrah and blackboy country suitable for fruit trees and vineyards.

Along the Salt River, about thirty miles to the east of the railway, there is an almost virgin country containing some of the finest land in the State. It is timbered with jam and flooded gum. At present most of this land is under pastoral lease, but it is worth buying under conditional purchase, if taken up for sheep raising alone.

Cost of Clearing.—The cost of clearing white gum and jam when green is about £2, and, after ringbarking, 25s. per acre, which includes taking out the roots to a depth of five inches.

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In the jarrah and redgum country, the clearing prices range from £3 to £6 per acre.

Fencing.—There being plenty of fencing timber throughout the district, the cost of fencing will be about £20 per mile for three wires, and £28 per mile for six wires.

Rainfall and Water Conservation.—The rainfall of the district averages about 22 inches per annum. The rains are well distributed over the cropping period.

Owing to the splendid rainfall, water is very easily conserved, and there are numerous permanent pools scattered throughout the district. As these pools have been set apart as water reserves, the settlers have the use of them. Water can almost always be obtained at from 6ft. to 20ft. in ringbarked country by sinking.

Prices of Stock.—Stock is very dear in this locality, and most of the new settlers bring from the Eastern States their farm horses. Heavy draught horses sell for from £30 to £45; light and medium draughts reach £15 to £25; hacks from £6 to £10. Ponies bred wild, and known locally as "brumbies," are extensively used. These small but hardy animals can be obtained from £3 upwards unbroken. Store sheep are worth from 12s. to 15s. per head; fat wethers from 18s. to 27s. 6d. Cattle realise from £8 to £12; milkers as much as £15.

The Wheat Yields.—During 1903 the local wheat yield was somewhat reduced, owing to the exceptionally heavy rains which fell in August and September flooding the low-lying ground. The average return is about 10 bushels per acre.

In addition to the cereal capabilities of the district fruit trees flourish splendidly, and most of the settlers have orchards of from one to ten acres near their homesteads.

Railway Facilities.—The Great Southern Railway runs through the district, within which there are three stations (Katanning, Broome Hill, and Cranbrook), and three sidings (Murdong, Tambellup, and Pootenup), to receive and distribute the crops.

Road Communications.—From the railway stations there are good roads leading into and tapping the country for about 30 miles east and west of the line.

Schools.—The district will be fairly well supplied with schools when those recently approved are erected. So far schools are to be found at Broome Hill, Kojonup, Carrolup, Toolbrunup, and Cranbrook; others are authorised for Tambellup and Nigalup.

Church Services.—Church services are held in the various Agricultural Halls throughout the district by different denominations. There is a Baptist Church at Carrolup.

Agricultural Halls.—There are Agricultural Halls at Kojonup, Carrolup, and Broome Hill. A hall is also to be built at Tambellup.

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Wheat Stack, Katanning.

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Land Offices and Guides.—The Katanning Land Office is almost on the border of the Broome Hill District, and serves the latter for the transaction of business. The Land Inspector at Broome Hill also gives information respecting the Land Act, and receives applications. There are Land Guides at Broome Hill, Kojonup, Tambellup, and at Tenterden.

The Williams District.

(Inspector W. W. Thompson.)

Travelling west from Narrogin, most of the first-class land has been selected within the last two years, but there is good grazing country between the Perth-Albany road and the Great Southern Railway. A great deal of it is "stinkwood" country, which, in itself, is a good standby in dry seasons, and can be greatly improved by ringbarking and fencing. Sheep have been shepherded for years along the Wangeling Brook and the Arthur River, and to-day the best flocks in the district come from there. There are good patches of red loam, suitable for cultivation, interspersed through the grazing areas.

West of the Great Southern Railway.—Crossing the Perth-Albany road, and going west, the route of the proposed Collie-Narrogin railway is met with; the neighbourhood is one in which selection is rapidly going on. Southwards, along the Hillman River, near its Junction with the Arthur, there is some really first-class land, especially to the east and south of the Darkan Agricultural Area. This fine belt of country extends for miles along the Arthur and Beaufort Rivers. It is one of the best stretches of good agricultural and grazing land available within a reasonable distance of a railway, and eminently suited for settlement. There is an ample supply of water; the ground is admirably adapted for mixed farming, and is well grassed. The permanent pools in the Arthur River should enable this to become a great dairying district.

On the Beaufort River.—Along the Beaufort River, on both of its banks, but especially on the north, is a considerable area of excellent agricultural and stock land. Here, however, unfortunately grows the poison plant, which fact has up to now caused the ground to be neglected, but it has been proved that the noxious plants can be grubbed up at a reasonable cost, and, with reasonable care, the paddocks can then be kept clean and be safe for stock. On the south side of the river, there is a plentiful scope for selectors. All the land would have been taken up long ago if it had been nearer to a railway, which means of communication is now to a certain extent being provided for by the Collie-Narrogin line, and it is probable that all the ground will consequently shortly be applied for.

East of Wagin.—Almost all the country from the Beaufort bridge along the Perth-Albany Road to Wagin is occupied, and is being worked with very good results, although a few years ago

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the land of this district would have been regarded as only second-class. To the west of the Great Southern Railway, for 20 miles, the only good grazing land which remains unsold lies about 15 miles from Wagin. A settler requiring a large area of first-class country would have to go 30 miles east of the Great Southern Railway. The excellent roads and the facilities for stocking, where both sheep and cattle will do well, compensate, however, for not getting nearer the line. There is such a large tract of good land east of Wagin that it deserves the attention of new-comers.

Water and Rainfall.—Although there is a smaller rainfall to east than to the west of Wagin, summer thunderstorms are frequent in the former locality, and the clearing of the land results in water being obtainable in abundance.

Wagin Crown Lands.—There is more Crown land in the immediate vicinity of Wagin than around any other township on the Great Southern line. Full information, plans, etc., may be obtained from the recently established permanent land agency at Wagin.

Cost of Clearing.—The cost of clearing ranges from 10s. to 50s. per acre, the trees being burned after ringbarking. In summer most of the trees burn away without any further trouble.

Schools.—There is a good State school at Williams.

The Kojonup District.

(Inspector A. Napthali.)

This district commences near Broome Hill on the Great Southern Railway, and extends to near Woodanilling siding, west of the line, taking in the Darkan and Kojonup townsites. The whole of this large area has an excellent rainfall, and is suitable for all classes of agricultural settlement. The country, which is undulating and well drained, contains numerous creeks and rivers, such as the Carrolup, Balgarrup, and Beaufort Rivers, and their tributaries, which supply water in all directions. There are also several fresh water lakes, including Wagin, Norring, and Queerearrup Lakes. The soil is retentive for the conservation of water, and fencing and building material is plentiful.

Kojonup.—Around Kojonup there are large areas of good available land, which is being rapidly taken up to a distance of from 30 to 35 miles from the railway. Hundreds of miles of road have been cleared by the Roads Board within the last three years with a view to opening up the country, large areas of which are now being cleared and placed under cultivation. Along the roads, water sites have been reserved, and where required, tanks have been excavated at camping places for teamsters and travellers.

Grain Yields.—The average wheat yield per acre is nearly 12 bushels; that of oats 15 bushels; of hay 22cwt. Malting barley

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Sheep watering at dam near Wagin.

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does well; potatoes and other vegetables grow profitably, and it is a pity that at present more attention is not paid to them. Barley flourishes, and, needless to say, it forms a fine feed for stock. Trefoil and clovers find a congenial soil in the district, which will soon be largely devoted to dairying. Already a good class of milch cows is being imported by some of the settlers, who are satisfied that the climate is suitable for the growth of fodder crops.

Cost of Clearing.—The cost of clearing is from £1 to £2 per acre, but in exceptional cases dead, ringbarked timber has been cleared for 16s. per acre. Ringbarking, which costs from 1s. to 1s. 6d. per acre, is most profitable work, as it greatly reduces the expense of getting land ready for ploughing, and at the same time causes the outbreak on the surface of springs and soaks. The growth of grass, too, is of course more rapid and its quality more nutritious on ringbarked country. Ringbarking, when done close to the ground, which greatly assists the clean burning out of the roots, and is therefore to be recommended, costs 2s. 6d. per acre.

Fencing.—A good sheep and cattle proof fence, of six wires, with posts 9ft. apart, can be erected for £26 per mile. For clearing the line on either side of the fence for half a chain £2 per mile extra is paid. Dams cost 1s. 3d. per yard, but the rainfall is so abundant that the outlay under this head need not be large.

Settlers' Advantages.—The settler in Western Australia not only gets his land for half what is charged by the Crown in the other States, but the ground can be more cheaply cleared than corresponding country elsewhere; while, owing to the regular rainfall the yields are, as the statistics show, on the average much better.

General Estimates.—The cost of improving ground for grazing may be estimated, for an area of, say, four square miles or 2,560 acres, in the Kojonup District, as follows:—

> Fencing of external boundaries and subdivision into four paddocks, six wires, at £26 per mile, 12 miles of fencing, equals 2s. 6d. per acre; four 500-yard tanks, 1s. 3d. per yard, 1s. per acre; ringbarking 2,560 acres, say at 1s. per acre—£413. To which must be added sundry items that would swell the outlay to, say, £500.

Carrying Capacity.—The average carrying capacity of the Kojonup District, in its virgin state, is about a sheep to three acres. The district is well suited for the raising of stock of all kinds. Horse breeding should pay well, as it is at present difficult to purchase a good stamp of medium draught horse. Sires suitable for improving this class are still badly wanted. Bulls, rams, and boars have been freely introduced of late years, with good results. Shropshire sheep are found the most suitable for this part of the State, especially as, owing to the good price of meat, it pays to give more attention to the weight of carcase and the early maturing of lambs than to the production of fine wool. For mixed farmers there is nothing like the Shropshire for quick-growing, hardiness,

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and thriftiness in all kinds of country, and also for producing excellent mutton and a fair fleece.

Fruit Growing.—The area that is suitable for orchards is very extensive, especially on the western side of the railway. All kinds of fruit trees, except citrus, repay careful cultivation. There is a great deal of planting going on, the older fruitgrowers being the most enterprising in this respect, showing that they are well satisfied with the results they have already achieved. Happily none of the fruit pests that are most injurious exist in this locality, neither San José scale, the mussel scale, nor the fruit fly being known. As good orchards are to be found in all sorts of soils, it may be safely said that the land adapted for fruit growing is practically unlimited.

Agricultural Halls, Schools, Churches. — Agricultural halls have been erected at Katanning, Woodanilling, Carrolup, Arthur River, Kojonup, Broome Hill, and Wagin.

There are public schools at Katanning, Moojebing, and Woodanilling.

Church services are held in all parts of the district by Church of England, Roman Catholic, Presbyterian, Baptist, and Wesleyan clergy.

Land Offices and Guides.—Land offices are established at Wagin and Katanning, and the services of land guides are obtainable in several parts of the district.

Narrogin to Northam.

(Chief Inspector C. E. May.)

Narrogin.—Narrogin is situated on the Great Southern Railway, 162 miles from Perth and 178 miles from Albany. The surrounding district is one of the most fertile along the line. On the western side is the Dumberning Agricultural Area and the recently repurchased estate of Marjidin, also the excellent old farming district of the Williams. Probably no part of the Southern District is better adapted for mixed farming. Sheep and cattle thrive wonderfully, and fruit flourishes. This description also applies equally to the country to the east of the line, where there is a very large extent of land still awaiting development. The land is undulating. Water is obtainable at fairly shallow depths. The timber chiefly consists of jam wood, York, and white gum. When it is ringed and killed, it can be cleared at a cost of from £1 to £1 5s. per acre.

The townsite of Narrogin contains numerous substantial brick buildings, several churches, two hotels, coffee palace, post and telegraph office, school, flour mill, banks, etc. Narrogin is fast forging ahead, and promises to become one of the most important agricultural centres of the State.

Pingelly.—Pingelly, on the Great Southern Railway, is 130 miles from Perth and 210 from Albany. On the western side of the line there are large areas of excellent undulating, agricultural

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Corn Land, Brunswick.

Wheat Harvest Mecker n.

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land, extending towards Staunton Springs, Jelcobin, and the Hotham River. Thirty miles to the eastward there is a branch of the Avon River. The timber is chiefly jamwood, York gum, white and salmon gum. When the trees are dead, which occurs two or three years after ringbarking, permanent soaks become plentiful. Although numbers of prosperous settlers have recently taken up land here, there are still large areas open for selection. The district is equally suitable for either cereals, fruit-growing, or stock-raising, whilst sheep appear to do particularly well, and when improved, the country will carry in many places a sheep to the acre.

The Moorumbine Agricultural Area is close to Pingelly, which town has a flour mill, hotel, coffee palace, post and telegraph office, churches, schools, stores, etc.

Brookton, about 22 miles further north, is a small but rising town, which contains a substantial brick hotel, store, schools, church, etc.

Beverley.—Beverley is an important town, with extensive agricultural lands surrounding it, but the only available country for new settlement is around County Peak, on the east, and on the Talbot and Dale Rivers to the west. The district is well adapted for sheep, fruit, and mixed farming.

York.—York is situated on the bank of the Avon River, about 76 miles by rail and 60 miles by macadamised road from Perth. The town is one of the most picturesque and healthy places in Western Australia, and is the centre of old-established and fertile farms. Within a few miles of the town there are the estates re-purchased by the Crown for subdivision of Mt. Hardey, Gwambygine, Warding, Cold Harbour and Woodlands. Fourteen miles away there is Greenhills, another large agricultural centre, and thence, extending eastwards for 50 miles, an equally excellent belt of country continues as far as Mt. Stirling, with a sufficient rainfall for the production of cereals. The average wheat yield last season for the district was seventeen and a half bushels of wheat to the acre. Sheep thrive and fruit flourishes in the district. York possesses many superior buildings, the principal being the post and telegraph office, court-house, hospital, hotels, schools, churches, etc.

Northam.—Northam is on the banks of the Avon, 66 miles from Perth, 18 from Newcastle, and 22 from York, by road. The Yilgarn railway and the main pipe of the Goldfields Water Supply works pass through the town. In the vicinity of Northam are Grass Valley, Meckering, Cunderdin, Tammin, Doodlakine, Bainding, and other districts, where settlement is rapidly progressing. Large tracts of excellent country on both sides of the railway are still awaiting the settler. The country is suitable for cereals, sheep-farming, and fruitgrowing. The excellent farming district of Goomalling is also connected with Northam by rail. To the east of Goomalling there are two Agricultural Areas, Dowerin and Ucarty, and 50 miles north there is magnificent

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country in the vicinity of the Cowcowing Lakes, where an agricultural area is laid out.

Northam is the principal agricultural town in the State. It has a fine town hall and other public buildings. Electric lighting is installed. The town is provided with water from the goldfields main, and has a telephone exchange.

Miscellaneous.—In the eastern and southern portions of the district reported on, much of the country, timbered with white gum, sheaoak, etc., was, until a few years ago, passed by as poor by settlers. Experiments, however, with superphosphates caused this land to be eagerly taken up, it having been proved, when fertilised, to be equal to the richer looking lands for the production of cereals.

In what are considered to be the dry portions of the district, namely, those where there is only a 12-inch rainfall, the yield of grain in the lighter soils has been far greater than in the stiff lands. In many parts to the east of York and Northam what is known as "sand plain," is now being cultivated, with fertilisers, with very profitable results.

Ringbarking costs from 9d. to 1s. 3d. per acre; clearing (dead timber), 20s. to 25s. per acre; fencing, six wires, £24 per mile; excavation of tanks, from 1s. 3d. to 1s. 9d. per yard. Labourers' wages, 7s. per day.

The Narrogin District.

(Inspector G. M. May.)

The Narrogin district lies along the eastern side of the Great Southern railway, from about three miles north of Pingelly, for a distance of about 55 miles. It extends about 50 miles eastward, and contains approximately 1,750,000 acres, of which a large amount is still open for selection.

Physical Characteristics.—Some of the principal rivers of the South-West Division of the State take their rise in this district, notably the Avon, Hotham, Williams, and the Arthur. The elevation of the district above the sea line is comparatively high, although there are no specially high mountains. The climate is salubrious, the nights being cool and bracing, even in summer.

A dividing range extends north-easterly from Narrogin for a distance of about 40 miles, the land along it for a width of about 15 to 20 miles being for the most part good, strong loam, timbered with white and York gum, jamwood, and sheaoak. This tract is eminently suited for growing cereals, the soil ranging from rich chocolate to light, sandy loam. There are also in places fair-sized areas of salmon gum country, with stiff clay soils, besides numerous ridges and poor sandy flats. The banks of the watercourses are all well grassed, especially in spring time and early summer.

The Cost of Clearing.—After being ringbarked and sapped for a season, the timber burns very readily, making the cost of clearing

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Pasture Land, West Narrogin.

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comparatively light, ranging from 35s. to 45s. for preparing for cropping, and up to £3 per acre for fruit growing.

Fencing Material.—For fencing, jamwood posts are generally used, as they are readily obtained adjacent to the fencing line. A substantial fence of six wires can be erected for from £23 to £26 per mile, exclusive of the cartage of the wire from the railway yard.

Rainfall and Climate.—The rainy season, which extends from April to November, is uniformly reliable. The annual rainfall is from 15 to 20 inches. This fall is experienced for a distance of about 30 miles east of the railway line, beyond which the rain diminishes to from 15 to 10 inches, and extends over a shorter period of wet weather than is usual nearer the coast. The diminished rainfall renders the cultivation of the districts in which it is experienced somewhat unreliable for cereal crops, although the lighter showers are ample for the various grasses, and therefore for the purposes of the grazier.

The spring and autumn seasons are short, the summer dry, with an occasional thunder shower. There are spells of hot weather, but these are never very prolonged, and, taken as a whole, the climate of the district is temperate and enjoyable—bright, warm days being succeeded by cool evening breezes.

Mixed Farming.—This district has been chiefly devoted to mixed farming, that is, the production of wheat and oats, fruit-growing and stock-raising. Wheat is a very successful crop; oats have done well, although not so largely grown; and the thriving appearance of the orchards is a sufficient testimony that the locality will yield fruit in abundance. The keeping of stock is on the increase, and owners are doing so well that it may be reasonably expected that within a few years settlers will recognise the great advantage to be obtained from combining grazing with agriculture, both as regards profit to themselves and benefit to the State generally.

The Crop Returns.—On well-farmed lands wheat has during the last five years given a return of from 16 to 20 bushels per acre. Indeed, some settlers, in 1903-4, obtained as much as from 30 to 36 bushels per acre from fallowed paddocks. The hay crops, too, during that season were especially heavy, several farmers having cut on the Moorumbine and Wickepin Agricultural Areas up to two and three and a half tons per acre.

Schools, Agricultural Halls, etc.—In the principal towns in the district the following churches and schools are to be found, viz:—Pingelly: Church of England, school and Agricultural Hall. Moorumbine: Church of England, school, and Agricultural Hall. Cuballing: School and Agricultural Hall. Narrogin: Church of England, Baptist Church, and school. The services of the Roman Catholic Church are also held monthly in the chief centres, and the Wesleyans are about to build a church at Cuballing. Where and

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whenever the number of children warrant the Education Department in doing so, new schools are opened to meet the requirements of expanding settlement.

Water Supply.—Water is easily obtained throughout the district, as after the country has been ringbarked good water is to be found at a shallow depth in almost all the brook beds and gullies, while in many cases soaks and springs show on the surface. A plentiful supply of good stock water can generally be got at a depth of from 30ft. to 60ft.

The Prices of Stock.—Monthly stock sales are held at Narrogin and Pingelly. The price of store sheep ranges from 13s. to 17s. per head, and of cattle from £5 to £10 per head. Light horses bring from £12 to £20, and draughts from £20 to £35. The Clydesdale and blood stallions that have been lately imported are likely to help in improving the quality of the local horse stock.

Thriving New Settlement.—The district, with a few exceptions, principally near Pingelly, is the home of new settlers, whose already well-appointed homesteads and substantial barns tell of the thriving state of their owners.

Land Guides.—Land Guides are stationed at Narrogin and Pingelly.

Local Land Offices.—Branches of the Government Land Office are open at Pingelly every Wednesday and Friday, and at Narrogin daily. The public can inspect up-to-date plans of the district, and obtain any information they may require.

The Land Bank.—The Land Bank has been of much assistance in establishing many farmers in the district, who readily admit that it was due to its timely aid, before reaping their first crop, that they are in the good position they are to-day.

The Albany District.

(Inspector J. E. Angove.)

The Albany District, comprising about 3,560,000 acres, extends from Albany 62 miles north to Tenterden, on the Great Southern railway, east to Cheyne's Beach, and west to the Gardiner River. The whole of the district has an abundant rainfall, and has on its south boundary the Port of Albany.

Description of the Soils.—The land near Albany, within a radius of 20 miles, consists of alluvial swamps, peaty flats, and higher land timbered with redgum and jarrah.

The swamps and flats are well adapted for the cultivation of potatoes and all market garden products. The timbered lands in selected spots are admirably suited for fruit, especially apples.

Drainage is necessary in the lower lying country.

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The Cost of Clearing.—It will cost from £3 in the rushy swamps to £20 per acre in the thickly timbered ones, to get the ground ready for the plough. In the forest land, away from the swamps, among the hills, it costs from £5 to £12 per acre to clear redgum, and up to £20 for karri.

The Rainfall.—The rainfall in this district is 36 inches, enabling vegetables to be grown during months when some other parts of the State are too dry for this kind of intense cultivation.

Torbay and Denmark.—To the west of Albany are Torbay and Denmark, which are served by a railway owned by the Millar Karri and Jarrah Forests, Limited. Here the land is of first-class quality, being of a red loamy formation, resting on a clay subsoil, and timbered with karri, jarrah, and redgum. It is expensive to clear, but fertile enough to quickly repay the outlay. Clover, cocksfoot, paspalum, and lucerne also grow remarkably well when the forest has disappeared. In the valleys of the hill country there are some comparatively lightly timbered flats which are suitable either for potatoes or laying down with grasses. These flats, which require draining, cost from £2 to £4 per acre to clear.

The land round Torbay and Denmark has been comparatively overlooked by settlers owing to the denseness of the forests. As the district is only a young one, there is a larger choice of ground than is to be found in some other places. Nevertheless, the land under notice will give a rotation of crops and a larger return per acre in dairying, for example, than areas which have a similar rainfall, but are otherwise chiefly adapted for cereals.

Mt. Barker.—Mt. Barker, 40 miles from Albany, possesses some of the finest orchards in the State; the apples are particularly good. The native timber is redgum, jarrah, and yate. The cost of clearing ranges from £5 to £12 per acre in virgin forest, and half as much after the trees have been killed by ringbarking. Cereals are not at present largely grown; hay crops yield from one to two tons per acre. To the west of Mt. Barker, say 20 miles distant, there are large areas at present under pastoral lease open for selection. The rainfall is about 28 inches; the climate is genial and bracing.

Schools, etc.—At Mt. Barker there are a State School, two hotels, Post and Telegraph Office, an Agricultural Hall, and an Anglican Church.

Tenterden.—Tenterden, 62 miles north of Albany, is better adapted for cereals and grazing than is the country nearer the coast. There is a large area of good land available, extending from 20 to 30 miles west of the railway line, and from 30 to 40 miles to the eastward. The rainfall is from 19 to 20 inches; the cost of clearing from £5 to £10 per acre.

Intending settlers can obtain all information as to the country open for selection at the Land Office, Albany, together with a free railway pass and a letter of introduction to the Land Guide.

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The Victoria District.

(Inspector Marshall Fox.)

The Victoria District, containing an area of some 13,700 square miles, is the most northerly in the South-West Division. The Murchison River from its mouth to Bompas Hill is on the north, the coast line on the west. Watheroo and the Hill River are the southern limit, and the line of the South-West Land Division forms the eastern boundary. Geraldton is the chief town and seaport. There are also townships at Northampton, Greenough, Dongara, and Mingenew.

Soil and Characteristics.—Throughout this large extent of country there are naturally many sorts of soil, from the stiff, red land, growing large timber, to the light loams, where the black wattle flourishes. Settlement commenced here many years ago, and the Greenough and Irwin Flats soon became famous for their extraordinary fertility. Approximately 770,000 acres are now held, either under conditional purchase or in fee simple, exclusive of the lands situated within the Midland Railway concessions. The chief rivers are the Chapman, which finds the sea near Geraldton, the Greenough, a few miles to the south, and the Irwin, which empties into Port Irwin near Dongara.

The Cost of Clearing.—The cost of clearing for cereals varies with the kind of timber that has to be removed. Wattle and jam country can be grubbed for £2; York gum for £3 per acre; for stump-jump ploughing (not taking out roots) one-third less—this work being known as "mullenising." Burning dead (*i.e.* ringed) timber is cheaper. For orchards, in wattle country, clearing costs £2 10s. per acre; flooded gum swamps or flats, £6 per acre.

Fencing.—The price for fencing varies with the distance that the posts have to be carted. In ordinary jamwood country a substantial fence of jamwood posts 10ft. apart, five galvanised wires and one barbed wire, can be erected for £25 per mile. The durability of jamwood posts is recognised everywhere.

Rainfall.—In the vicinity of Geraldton, Northampton, and Dongara, the rainfall varies from 18 inches to 24 inches, and the climate is almost as good as any in Australia. The mild winter and dry heat of summer suit most people, especially those engaged in outdoor occupations.

The Wheat Yields.—The average yield of wheat for 1902-3 was about 11 bushels per acre, whilst the following year was a more favourable season so far as some parts of the district were concerned, the average for Mingenew being as high as 15·3 bushels.

From Dongara to Northampton cereals, fruits, and vegetables flourish. The Chapman Valley is becoming famous for its oranges and mandarins. In the swamp gardens, some 20 miles north-westerly from Northampton, splendid samples of oranges, grapes, tomatoes, etc., are grown. A vineyard near Mullewa Junction,

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chiefly planted with table grapes, four and five seasons old, shows the fertility of light sandy country that is almost "sand plain."

Cereals and Grasses.—All kinds of cereals grow well in the neighbourhood of Northampton. There are records of 29 bushels of wheat per acre, and 72 bushels of oats at Carnamah. At the Experimental Farm, on the Chapman, where all varieties of land have been cultivated, it has been proved that, given sufficient rain, fertilisers make even the light sandy areas very productive. The district is suitable for grazing, and the cost of ring-barking is well repaid by the increased growth of herbage.

Railways.—The Midland Railway runs northerly from Watheroo to Mingenew, thence westerly to Walkaway, where it junctions with the Government railway which continues to Geraldton, and from there to Cue. From Geraldton to Mullewa and Geraldton to Northampton there are also lines, so that in this district there are three feeders in the shape of railways.

Schools and Churches.—Government schools, and churches of different denominations are erected at Geraldton, Northampton, Chapman, Moonyoonooka, Walkaway, Greenough, Dongara, and Mingenew. Each of these townships also has its public hall, which can be used for the meetings of the Roads Board or for social functions.

Water Supply.—In the Northern portion of the Victoria District water that is generally drinkable, and almost always fit for stock, is obtainable at shallow depths. At a greater depth a supply may be relied upon at Greenough Flats and Dongara, but among the Southern forests of the district it is more difficult to strike water; hence there the rainfall should be conserved. Windmills are commonly used to lift water from the wells.

Improvement of Stock.—The Victoria District possesses some very fine stock, strains for the improvement of draught horses, cattle, and sheep, having been obtained from some of the best blood to be found in the Eastern States. The importations show that the district is highly esteemed for its grazing capabilities.

Prices of Stock.—The price of stock naturally varies, according to the season, but a fair average for fat sheep is fourpence to fivepence halfpenny per pound, carcase weight; culls bring eight to ten shillings; store bullocks, £6 to £10, and mixed cows for breeding, £6 to £8. Horses are always in demand.

Poultry Farming.—Poultry have an important share in mixed farming, and excellent specimens of table birds and laying strains are exhibited at the annual shows. American bronze-wing turkeys are successfully reared, and are very profitable. The goldfields demand for poultry is so great that an excellent living is, in some cases, made by those who devote their attention solely to breeding poultry.

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Land Guides.—Land Guides who, without charge, will show and advise new comers respecting new land open for selection, are stationed at Northampton, Mt. Erin, and Greenough River.

The Midland District.

(Inspector J. T. Barrow.)

The Midland District extends east from the vicinity of Jurien Bay through Watheroo, on the Midland Railway, to a point about 25 miles east of Watheroo; thence southerly to Clackline on the Eastern Railway; thence south-westerly along that railway to Fremantle, and thence north-westerly along the coast-line to the starting point near Jurien Bay. The country embraced within these lines varies from 50 to 100 miles in breadth from the coast eastwards, and is about 125 miles in length from its northern to its southern limits. The total area is about 4,500,000 acres.

Description of the Soils.—The area of country described above naturally embraces many different kinds of soil. From the Eastern railway line at Fremantle and Perth northwards to Jurien Bay, the variable character of the land is especially noticeable, owing to the contrast of swamps, which surround numerous fresh water lakes, with the lighter loams of the bulk of this part of the district. Around the lagoons are to be found the rich alluvial deposits that are most lucrative to the market gardener and the vegetable grower.

Land for Selection.—In the vicinity of the Midland Railway the Crown lands have been mostly settled upon, but at Lake Pinjar, Gingin, Wanneroo, Moore River, Victoria Plains, New Norcia, Koojan, Dalaroo, Dandaragan, and Watheroo there are thousands of acres still available from which a selection can be made.

The land along the coast northward of Perth is chiefly suitable for grazing, but round Wanneroo large quantities of vegetables are grown on swamps. At Lake Pinjar, 25 miles from the city, 6,000 acres have been surveyed in lots of from 100 to 200 acres.

Westward from Mogumber the frontages of the Moore River, which were reserved as an alternative site for the weir of the Goldfields Waterworks Scheme, are being surveyed as an irrigation colony for which the large volume of the stream should render the blocks valuable. The land is a red loam that should grow fruit to perfection, when the trees are watered in summer. In this part of the district soils of many kinds are to be met with, including light sandy loams, heavier black and chocolate land, and ironstone-gravelly loam, so that there is a wide range of choice as to the variety of crop to be grown. In fact settlers should have little difficulty in picking blocks suitable for almost any kind of cultivation for which they have a special preference.

Cost of Clearing.—As a rule the Midland district is not very heavily timbered, although there are exceptions. The heaviest cost is for clearing paper-bark or ti-tree swamps (£15 to £20 per acre),

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but the summer vegetables grown on them give subsequently a a return in proportion. Other land for cereals can be cleared for from £2 to £4 per acre.

Midland Railway.—The Midland Railway traverses north and south the whole of the country herein spoken of, giving communication with the metropolitan and Murchison goldfields markets. This railway was built on what is called the land grant system by a company, whose present prices for blocks are to some extent restrictive to settlement.

The Rainfall.—As regards climate nothing better could be desired for farming purposes. The average rainfall varies from 31 inches at Guildford, at an elevation of 25 feet above sea level, to 18 inches at New Norcia, at an elevation of 600 feet above sea level; whilst at Gingin, at an elevation of 329 feet, the average rainfall is 24 inches.

Public Buildings.—Post and telegraph offices are fairly well provided throughout the district; mail services are maintained to all outlying parts, the contracts being let annually.

Schools, agricultural halls, and churches are found in the various townships, and are gradually being added to in other directions as settlement increases.

Selecting Land.—The most satisfactory way of examining the district is for a visitor to drive, and carry his own supplies, as suitable places of accommodation are not always to be met with at the stages desired.

Collie-Narrogin District.

A most important new agricultural district is about to be opened up by the construction of a railway which will connect the Collie coalfields with Narrogin, on the Great Southern line. The country has the recommendation that its rainfall is ample, varying from 38 inches at Collie to 17 inches at Narrogin.

Rivers, etc.—The Bingham River, east and north branches of the Collie River, Coolakin Brook, Darkan Gully, Hillman River, Williams River, and the Coalling, 14-Mile Junction, and Geeralying Brooks run through this district.

The first 40 miles of the railway route, starting from the Collie, passes through very sparsely-settled country, as prospective settlers having no means of getting their crops to market are holding back until the line is constructed. The land is suitable for vegetables, fodder plants, and cereals, and for the raising of cattle, horses, sheep, and pigs. On the Salvation Army's Settlement at Collie, two tons of hay per acre have been harvested; whilst very excellent crops of fruit, vegetables, hay, and corn have been grown at other farms in the district. Ringbarking is especially beneficial in producing a heavy sward of grass. The climate is so cool in summer that butter is made all the year round. The first section of land from Collie is well watered by deep permanent pools in the rivers,

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and by springs and swamps in every direction; over 200,000 acres are free from poison. The soil is patchy, including rich black swamps and loamy flats, as well as ironstone ridges. As a summer ground this area is in high repute, the stock keeping in fine condition. Pigs have grown and fattened on the Bingham River without artificial feeding. The climate is unexcelled for curing bacon.

At a distance of 40 miles from the Collie, approaching the left bank of the Williams River, quite a different class of country is reached; the jarrah, red gum, flooded gum, and blackboys giving place to the York gum, white gum, and jamwood. The land now as far as Narrogin, a distance of a little over 40 miles, is more open, easier to clear, and better for cereals. The Marjidin Estate, of about 9,000 acres, on the Williams River, which has been purchased by the Government, is on the route of the proposed Collie-Narrogin railway, and has a frontage to it of a little over 2 miles. The Lower Williams, Bannister, and some of the Upper Murray River country will be opened up by the line. The land within 10 miles on either side of the route, suitable for settlement, is estimated at 500,000 acres, and the successful opening up of the country, which it is anticipated will immediately follow the completion of the coming railway, should prove a strong incentive for a still further advance in the progressive land policy of Western Australia.

AGRICULTURAL AREAS.

Along the Great Southern Railway.

Beverley.—This area, five miles from Beverley on the Great Southern railway, 103 miles from Perth and 238 from Albany, contains 35,000 acres, and has a frontage to the Dale River. The timber is mostly York gum and jamwood, which can be cleared for from 30s. to 50s. per acre. About 2,019 acres are available for selection.

Moorumbine.—The Great Southern railway runs through the Moorumbine area, 118 miles from Perth, 20 from Beverley, and 223 from Albany. The Brookton railway station and the Brookton townsite are on the area. About 1,120 acres remain to be taken up out of 39,343. The land is a light loam, that recent experience has shown will grow heavy crops of cereals if dressed with about 1cwt. of phosphates per acre.

Narrogin.—Two miles from Narrogin, on the Great Southern railway, 12,749 acres, surveyed into 60 blocks, have nearly all been taken up, but the total size of the Narrogin area is 25,000 acres. Only 437 acres are at present available. Narrogin is 162 miles from Perth.

Dumberning.—Dumberning, close to Narrogin, has 2,424 acres available, similar to the heavy rich soils of the Narrogin-Katanning district, which, under cultivation, have been proved to be of superior quality.

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Wickepin.—The Wickepin area is 68,852 acres, 10 miles from the Great Southern railway, of which now only 9,360 acres are vacant. This is regarded as an especially good cereal area, the crops having been heavy and the wheat first-class. The timber consists of York gum and jamwood; cost of clearing, 30s. to 60s. per acre. There is a good road to the Cuballing railway siding, which is 153 miles from Perth.

Wagin.—The Wagin area contains 15,075 acres, 1,292 of which are open for selection. The land here is best adapted, generally speaking, for fruit. The area is located on the Great Southern Railway, and the townsite of Puntaping, consisting of 44 Suburban lots, is upon it.

Darkan.—Midway between Wagin and Bunbury, and 30 miles from the Great Southern Railway, is the Darkan area, of a total of 12,452 acres, which have all been taken up. Soil and rainfall are excellent. The contemplated Collie-Narrogin Railway is intended to pass through the area, which is traversed by a branch of the Hillman River. The timber is fairly heavy; cost of clearing, £4 to £6 per acre.

Katanning.—This area contains 50,617 acres, of which 40,997 are surveyed into 282 blocks; there are now only about 3,142 acres open for selection. The area is situated on the Great Southern Railway, 225 miles from Perth. A first-class roller flour mill has been erected at Katanning, around which rapid settlement has taken place since the railway was acquired by the Government, about seven years ago. The area is well provided with roads; water is easily obtainable; clearing costs from 30s. to 60s. per acre. The land is suitable for fruit. One of the largest and best orchards in the State is in the Katanning District. For the encouragement of village settlement, 394 town and suburban lots of from three-quarters of an acre to 18 acres have been surveyed.

Ewlyamartup.—Near Broome Hill, on the Great Southern Railway, 237 miles from Perth, is the Ewlyamartup area, containing 45,195 acres; 10,365 acres are still open. The timber consists chiefly of York gum and jamwood; clearing costs from 30s. to 60s. per acre. The roads and the rainfall are good. Water can easily be conserved in dams.

Tenterden.—On the Great Southern Railway, 291 miles from Perth, lies Tenterden. Of 30,000 acres, 4,429 are still open for selection. Timber, chiefly white gum; rainfall abundant; medium quality soil. As a village settlement 55 town lots and 57 suburban lots have been surveyed.

In the South-West and South.

Torbay.—Fifteen miles west of Albany, with which it is connected by the Torbay railway, lies Torbay. There is some gardening

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land, heavily timbered with karri, jarrah, red gum, and scrub. Of 53 lots, ranging from one to 200 acres, only 2,838 acres remain unselected.

Jandakot.—This area, near Perth and Fremantle, is described on another page, and as all the land has been selected, it will be sufficient to add that the area shares with Wanneroo the chief production of vegetables around the metropolis.

Serpentine.—This is another area which is wholly alienated. It is situate on the South-Western railway, 34 miles from Perth.

Coolup.—On the South-Western railway, commencing 56 miles from Perth, 8,092 acres are open at Coolup. The area is intersected by productive swamps. Clearing costs about £6 per acre. The Government has drained the area, and the prices of lots range from 10s. to 15s. per acre, on twenty years' terms of Conditional Purchase.

Harvey.—This area adjoins the South-Western railway, and comprises 24,537 acres. All except 2,753 acres have been applied for. This land has been temporarily reserved, pending the settlement of drainage questions. In the area are the Drakesbrook and Cookernup townsites, representing 129 town and 145 suburban lots.

Uduc.—The Uduc area lies five miles from the South-Western railway. Of the total area of 12,000 acres, 8,415 have been surveyed; 2,142 acres are still available for selection. Uduc, like the balance of the Harvey area, has been temporarily reserved until the completion of the Government drainage scheme.

Collie.—This area, eight miles from Bunbury, is served by the South-Western and the Bunbury-Donnybrook railway lines. It is well watered and suitable for fruit and vegetables. The Collie coalfield is within 25 miles. All the land has been taken up.

Boyanup.—The Boyanup Agricultural Area, which is about twelve miles from Bunbury, contains 47,954 acres; 13,745 acres are open for selection. This area is served by the line between Bunbury and Donnybrook, which is an extension of the South-Western Railway. Boyanup contains much land well adapted for cereal, fruit, and vegetable production. Dairying also is an industry which promises well in this locality.

Preston.—This area contains 51,545 acres; 11,218 acres are available for selectors; the land is 25 miles from Bunbury, and bounded on the north by the Preston River. The soil is rich, and suitable for root crops, dairying, and fruit. Clearing is heavy, and costs from £6 per acre. The area is well watered by brooks and has a regular and abundant rainfall. It is intersected by the Donnybrook-Bridgetown railway.

Tweed.—The Tweed area, near Bridgetown, contains 19,685 acres; 820 acres are still available. This land, which is 175 miles from Perth, has the Blackwood River running through it. Part of it was chosen by the late Anthony Hordern for an Experimental Farm. It contains some of the best country in the State, but is

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costly to clear. For orchards, potatoes, etc., the locality can be strongly recommended.

Tanjanerup.—This area is located on the Blackwood River, some 25 miles west of Bridgetown. The experiment was tried here of ringbarking the timber, so that settlers, on obtaining a holding, would find the work of clearing much simplified. Tanjanerup is surveyed into 55 lots, varying in area from 100 to 160 acres. Of these, only a few are yet available for selection, aggregating 1,308 acres. The area is well watered, rather hilly, and possessed of fine land for orchard, dairying, and grazing purposes. Owing to the cost of ringbarking being added, this land is sold at 12s. 6d. per acre, in twenty annual instalments of 7½d.

Eastern Districts Agricultural Areas.

Meckering.—Meckering, the first area declared, is situated on the Yilgarn railway, 23 miles from Northam, and 89 from Perth. The whole of the 39,100 acres have been taken up. The Meckering settlers, as a rule, have been particularly successful, payable crops having been regularly obtained from light land that had been previously passed over as inferior by the pioneers of the district.

Tammin.—Tammin, 50 miles from Northam, on the Yilgarn railway, mostly consists of typical wheat-growing land, carrying salmon gum, morrell, and gimlet wood on a choclate loam. Only 682 acres are still open.

Doodlakine.—Further east on the Yilgarn railway is the Doodlakine area of 19,300 acres, of which 4,620 are still unalienated. The rainfall is rather light for regular heavy crops, which are, however, produced in wet seasons. The timber is chiefly salmon gum, gimlet, and morrell.

Bainding.—Bainding, still further east, and fringing the railway, 156 miles from Perth, is also on the uncertain rainfall line. Otherwise the land is very superior forest country, and first-class either for cropping or grazing after ringbarking. The supply of water from the Goldfields Waterworks main pipe laid along the railway assists greatly to overcome the scarcity of water in these eastern areas. All this land is taken up.

Caljie.—Caljie is adjacent to Meckering, the former lying within five miles of York, and 65 miles of Perth. The 7,138 acres which it contains are all selected.

Ucarty.—Ucarty, 12 miles north of Meckering, has an area of 1,909 acres available suitable for wheat. This is not a *declared* agricultural area.

Dowerin.—Dowerin, east of Goomalling 12 to 15 miles, is a splendid wheat centre, but rather dry, necessitating dam sinking for the conservation of water. Many settlers have prospered in this neighbourhood, the land being superior, and the Goomalling railway giving access to the market. The rainfall is 13 inches. Only 340 acres are still available.

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Yilgarn.—Golden Valley, north of Southern Cross, in the Yilgarn area is a doubtful locality for agriculture, on account of the light rainfall, but good for stocking after a downpour. An area of 480 acres is still vacant.

Northern Agricultural Areas.

Koojan.—This area is north of Perth 100 miles; it contains 9,725 acres; all however have been selected. It is bounded on the east by the Midland Railway, and watered by the Moore River. Cost of clearing, from 30s. to 50s. per acre.

Dalaroo.—Dalaroo adjoins the northern portion of Koojan, and fronts on the Midland Railway. The 4,025 acres which it contains have all been selected. On this area is the townsite of Moora, consisting of 89 town and 62 suburban lots. On Dalaroo there are some patches of moist summer cultivation land.

Appertarra.—On the west boundary of Northampton lies Appertarra; the land here is practically all selected, only 1,071 acres remaining. The Northampton-Geraldton Railway connects this area with Geraldton and the Murchison Goldfields.

Muchamulla.—A new agricultural area was quite recently surveyed on the Moore River in the Midland district. The land in question was, until lately, reserved as an alternative site for the Goldfields Waterworks Weir, there being a permanent and unlimited supply of water in the Moore River. The frontages have been cut into blocks of about 100 acres, and thrown open for selection. Inspector Buchanan reports as follows upon the locality:—"During my recent round of inspection along the Midland Railway, I had occasion to visit a property on the Moore River, about 15 miles west from Mogumber Railway Station. On my way there I passed through some beautiful red-gum flats along the river. . . At this part of the river there is a permanent supply of running water, and the land not now being required for the purposes for which it was reserved, could be made very productive. From its situation, the quality of the soil and the supply of water, I think this land (I now refer particularly to the rich river frontage) could not be turned to more useful and profitable account than to orange-growing, the latitude being just the thing for citrus culture." Further, Inspector Buchanan, reporting on the land to the Department of Agriculture, states that it is probably the finest citrus country in Western Australia. In the surveyed subdivision of the area each block has some of the best soil on the river, running back to the poorer country. An area of 1,385 acres remains open for selection.

Nonga.—Nonga, fronting the Bowes River and the Nokanena Brook, has 9,954 acres, of which 4,444 acres still remain Crown Lands. These should be very valuable for fruit. The rainfall is abundant, and the cost of clearing light.

Mullewa.—The Mullewa area, near Mullewa townsite, 65 miles from Geraldton, on the Geraldton-Cue Railway, contains 12,000 acres; also 93 town and suburban lots. There is a fair rainfall, the

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average for the district being about 11 inches. Clearing from 30s. to 40s. per acre. A total of 4,162 acres remains available.

Bowes.—This area consists of 16,250 acres in the Northampton district, all but 663 acres of which have been selected.

Alma.—Another of the areas surveyed upon portions of the old northern squatting runs that have recently been resumed, Alma, has 9,237 acres, all but 425 acres taken up.

Chapman.—Chapman is one of the best mixed-farming districts in the State. Orchards, orange groves, wheat, and stockkeeping all flourish. The area of 19,599 acres, has been cut out of a Northampton station property, and its excellence as a field for settlement is attested by the rapid application made for the blocks. An area of 5,363 acres is still open to the selector.

Lake Pinjar.—This is a special area intended for intense culture. It contains 3,911 acres, 558 acres of which remain available for selection.

Kadathinni.—This area is situated West of the Midland Railway, at "Three Springs." The land is timbered with York gum, white gum, and salmon gum. Portions consist of very rich red soil. The rainfall averages between 14 and 15 inches, in which respect, as in almost every other also, it resembles Carnamah, where land has produced as much as 27 bushels of wheat and 47 bushels of oats per acre. The area is 9,000 acres.

Esperance Areas.

Myrup.—Here there are twenty-eight lots within a few miles of Esperance, from 100 to 140 acres each. Myrup Creek traverses the area. There is alluvial land on the creek for vegetable gardening; 1,453 acres are available. The rainfall, averaging twenty inches, is ample.

Dalyup.—The Dalyup River, which flows into Lake Gage at a point about 18 miles west of Esperance, has some fertile flats that have been divided into forty lots of from 50 to 170 acres, all but 932 acres of which are now in private hands.

Doombup.—Another area which has recently been thrown open is Doombup, containing 1,471 acres, all available.

New Areas for Selection.

Lake Cowcowing Country.—The proposed Cowcowing Agricultural Area is located from 30 to 40 miles north-east of Goomalling. Under the scheme of subdivision the area has been cut up into lots of from 250 to 500 acres, which are about to be thrown open for selection. The total area, including salt lakes, to be dealt with, is 350,000 acres, the area occupied by the lakes being 40,000 acres. The land has been classified as follows:—First-class, 89,000 acres; 2nd, 23,000 acres; 3rd, 116,000 acres; 4th, 54,000 acres; the balance being beds of lakes. The country is undulating, attaining a fair eminence at Dandarragan. The timber

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is mostly salmon gum, gimlet wood, morrell, and mallee, with jam wood, York gum, and manna gum at the soaks and feeding patches. On the west and north-west of Lake Cowcowing, there is a plentiful supply of small soaks, owing to the prevalence of granite. A water reserve has been made at Booralming, a spot which is suitable for a townsite, and at Doordarding another soak has been set apart for public purposes. To the north-east of Booralming is a fresh water lake, which will also be reserved. The first-class land is almost entirely forest country, consisting of gimlet wood, salmon gum, morrell interspersed with mallee. The bulk of the good land lies to the east of Lake Cowcowing. Immediately to the west of the lake there is a considerable area of good country. The good country becomes more scattered as the lake country is left behind. The second-class land consists mostly of forests of salmon gum and undergrowth, or forests of salmon gum only. Sand plains with mallee and tamar thickets form the third, and gravel plains, with low scrub and poison country the fourth-class. Around the margin of the lakes there is some fine land, the beds of the lakes are generally flat, and when dry grow good pasture.

Mr. Surveyor Lewis, summarising the results of his examination of the country between 18 and 30 miles of Goomalling, in the direction of Cowcowing, writes:—(1.) "Examined 340,000 acres, of which 26,000 acres are good forest or mallee; 18,000 acres mallee or thicket, which will probably be selected (as grazing areas) with the forest country, and 6,000 to 7,000 acres second-class (that is, good grazing, but rocky). (2.) In a flying trip to Cowcowing I saw such an extent of good forest country as to warrant a careful examination. (3.) Within the prescribed limits (18 to 30 miles from Goomalling railway station) about 300,000 acres remain to be examined."

Eastwards of County Peak.—A large tract eastward of County Peak, Brookton, and Pingelly, known as Caroling, and comprising a great deal of first-class country, with an excellent rainfall, has lately been thrown open for selection. It had been intended to declare an agricultural area in this district; but applications poured in so rapidly, that it was decided not to delay in making the land available, and the agricultural area (which would have necessitated survey before selection) was cancelled. Mr. Inspector Brockman says:—"This country begins 17 miles east of Beverley, and extends eastward about 30 miles. An extension of the Greenhills railway must go near this land, enough of which is first-class to justify the declaration of an Agricultural Area. Already the district is much closer to railway communication (the Great Southern) than many of the Agricultural Areas, which have proved a success. In my opinion there are some 35,000 acres in the locality that are worth development for agriculture."

RE-PURCHASED ESTATES.

The estates purchased under the Agricultural Lands Purchase Act, which was designed to encourage closer settlement, have so far

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Gwambygine, near York.

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been disposed of as soon as surveyed, so that these need only be briefly described. The Stirling, Mount Erin, Arrino, and Marjidin estates have recently been made available for selection. The re-purchased estates are as follows:—

Coondle.—Seven miles from Newcastle; hilly country; 90 lots; watered by the Toodyay Brook. The land is chocolate, and of good quality. Excellent for fruit, wheat, and grazing.

Norman.—Near Coondle, and less mountainous. A good mixed-farming district. Rainfall, 18 inches. Forty-three lots of from 100 to 400 acres are surveyed.

Throssell.—Formerly "Grass Valley"; near Northam, and adjoining the Eastern Railway. Fifty-two lots, 100 to 500 acres each. Rich chocolate land, especially good for wheat. Rainfall, 16 inches.

Warding.—Part of Throssell estate, about 20 miles from Northam or York. Thirteen lots, 170 to 350 acres each, choice wheat land. Rainfall, 16 inches. Clearing costs from 15s. to 50s. per acre.

Mount Hardey.—Adjacent to York, has the York-Greenhills Railway passing through it. There are 96 blocks, 100 to 500 acres in each. The quality of the land varies, some of it, timbered with white gum, being inferior to that which carries York gum and jamwood. Rainfall, 17 inches.

Gwambygine.—South of York, and traversed by the Perth-Albany Railway. Comprises flats and hills, suitable respectively for cultivation and stocking. Seventy-four lots, all of which are sold.

Cold Harbour has a frontage to the Avon River close to York, and comprises 6,876 acres. It is similar to Gwambygine in soil and contour. Only 271 acres remain.

Marjidin.—The Marjidin Estate adjoins the Williams township, and contains 8,603 acres, of which a fair proportion is fit for agriculture. A main road connects with Narrogin. The rainfall is 25 inches, and for fruit-growing, cereals, and grazing, the district can be favourably recommended. The area still open aggregates 1,972 acres.

Clifton.—This land is near the Collie Railway Station, and is subdivided into 35 lots of from 40 to 100 acres. The estate is on the main Perth-Bunbury road. Moist summer lands invite intense cultivation, but drainage is required on the flats for winter cropping. Ninety-five acres only remain.

Homebush.—Close to the Cookernup station, on the South-Western Railway, this estate contains 55 lots of from 10 to 20 acres each. This property has been improved by the Government drainage canals on the Harvey agricultural area. All the land is taken up.

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Mount Erin.—This re-purchased estate was thrown open for selection during 1904. It had been subdivided into 102 blocks and offered for sale at prices varying from 2s. to 17s. per acre, and as high as £3 per acre for the homestead block, which is highly improved. Altogether about 60,000 acres have been surveyed into blocks, and of this area 47,000 have been sold on liberal terms, extending over 20 years. The estate is on the Chapman River, 20 miles north-east from Geraldton, or about 20 miles south-east from Northampton. The wheat crops in the neighbourhood average 15 bushels per acre. The rainfall is about 18 inches, and the soil is mostly a light chocolate loam. The estate is well watered in the winter by brooks.

The Oakagee Siding, on the Geraldton-Northampton Railway, about 12 miles from the estate, and the Newmarracarra Station, distant about 18 miles, on the Cue line, afford ready railway communication both with the metropolis and the Murchison goldfields.

The blocks not yet applied for consist mostly of third-class land.

The re-purchase and the re-selling of this estate, from a business point of view, has turned out very satisfactorily, both to the Government and the purchasers, who all appear to be well satisfied with their various blocks. Of the total area 12,881 acres remain open for selection.

Stirling.—The Stirling Estate is a block of 9,000 acres, adjoining the Capel townsite between Bunbury and Busselton. It was originally selected by Governor Stirling, the first Governor of the Colony, as being one of the most eligible tracts in the then newly-founded colony. Nearly the whole of the western portion of the estate consists of rich, black soil. capable of yielding heavy crops of potatoes and cereals, while, generally speaking, the clearing is light. The southern portion of the property is similarly good, but it is heavily timbered. A portion of the best land needs draining, and when this is done Stirling will, in the opinion of the Lands Purchase Board, become one of the greatest producing centres in the South-West division of the State. There are about 3,000 acres of swamp land of two classes—open swamp land, and that timbered with paper bark. The open land is practically ready for the plough, and is well grassed in the drier months; for root crops it is highly recommended. The paper-bark swamp is still richer, but it will cost £10 or £12 per acre to clear it. Another section, of about 750 acres, is good agricultural land, loamy clay, timbered with red gum, jarrah, and blackboy; it is well suited for cereals. The remainder of the property is of light sandy soil, timbered with blue gum, jarrah, tuart, peppermint, and banksia, and is more useful for grazing than for cultivation. The Surveyor-General has drawn attention to the value of the tuart on the Stirling area. He points out that this timber is scarce and valuable, and that the forest should be regarded as an asset by the

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purchasers of blocks. The ground has been subdivided, and is now practically all selected. The railway facilities enjoyed by this area, which is near the Bunbury-Busselton line, and also the ready market afforded by its proximity to the flourishing port of Bunbury, are worthy of note.

Arrino.—The Arrino Estate is a re-purchased block of 12,000 acres, about seven miles from the Arrino Siding on the Midland Railway, 196 miles from Midland Junction. The Lands Purchase Board, in recommending the purchase to the Government, spoke highly of "the superior quality of the soil for farming purposes," adding that when the excellence of the land for cereals became known, selection would be rapid. In close proximity to the Arrino Estate there is no Crown land of a similar description, but on the western side of the Midland Railway, within a 20-mile radius, there are several patches of good land available.

The 12,000 acres which it contains have been surveyed into lots of from 200 to 500 acres; fresh water has been obtained by boring by the Public Works Department, and wells have been sunk, and reservations made around them for the use of the public. The estate is timbered with morrell, York gum, manna, jam wood, and white gum, and there are some fine flats of chocolate soil.

Wolya.—This estate comprises about 3,500 acres, subdivided into five blocks. It is situated on the Cue line, about seven miles west of Mullewa. The timber consists of good York gum, bastard jam, mallee, and tamar thicket. The land is classified as third class, and the price per acre varies from 4s. 6d. to 5s. per acre. There are two blocks of about 1,000 acres each available for selection, and three blocks averaging 500 acres each. The average annual rainfall is 10 inches. It is considered good sheep country.

The Bolgart Estate.—This property has been acquired under the Agricultural Land Purchase Act for the sum of £3,000. The area of the estate is 9,327 acres, and has been subdivided into 19 allotments, ranging from 216 acres to 967 acres; the smaller blocks comprising the better quality, and the larger blocks the inferior quality of land. The estate consists of 3,724 acres of first-class land, 2,544 acres of second-class land, and 3,052 acres of third-class land. Some of the first-class land is valued at over 30s. per acre. The timber growing on the various classes of country comprises salmon gum, white gum, jam, and banksia. A reliable water supply can be obtained by wells and open excavated tanks. The estate is situated about 20 miles from Newcastle, in a northerly direction. The rainfall is most plentiful and reliable, the figures recorded at Newcastle for 1904 being 31·22 inches.

The Dudawa Estate.—In the Victoria District 11,868 acres have been surveyed of the Dudawa Estate. The survey is, however, not yet approved, and the estate not yet open for selection.

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AREAS AVAILABLE.

The following is a complete list of the declared Agricultural Areas and the Re-purchased Estates, showing their total acreages and the areas still available for selection :—

Agricultural Areas.

Name.	Area.	Available (approximate figures).
Great Southern Railway—	Acres.	Acres.
Beverley	35,000	2,019
Moorumbine	39,343	1,120
Narrogin	12,749	437
Dumberning	31,147	2,424
Wickepin	68,852	9,360
Wagin	15,075	1,292
Darkan	12,452	...
Katanning	50,617	3,142
Ewlyamartup	45,195	10,365
Tenterden	30,000	4,429
In the South-West and South—		
Torbay	6,800	2,838
Jandakot	36,000	...
Serpentine	15,200	...
Coolup	33,303	8,092
Harvey	24,537	2,753
Uduc	12,000	2,142
Collie	7,150	...
Boyanup	47,954	13,745
Preston	51,545	11,218
Tweed	19,685	820
Tanjanerup	7,200	1,308
Eastern Districts Agricultural Areas—		
Meckering	39,100	...
Tammin	24,000	682
Doodlakine	19,300	4,620
Bainding	9,419	...
Caljie	7,138	...
*Ucarty	3,180	1,909
Dowerin	17,721	340
Yilgarn	15,000	480
Northern Agricultural Areas—		
Koojan	9,725	...
Dalaroo	4,025	...
Appertarra	4,420	1,071
Muchamulla	2,447	1,385
Nonga	9,954	4,444
Kadathinni	9,000	9,000
Lake Pinjar (Special Area for intense culture)	3,911	558
Mullewa	12,000	4,162
Bowes	16,250	663
Alma	9,237	425
Chapman	19,599	5,363
Knowsley (near Derby)	22,000	2,036

* Not a *declared* area.

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AGRICULTURAL AREAS—*continued.*

Name.	Area.	Available (approximate figures).
Esperance Areas—	Acres.	Acres.
Myrup	6,600	1,453
Dalyup	13,000	932
Doombup	1,471	1,471
Total	880,301	118,498
RE-PURCHASED ESTATES.		
Coondle	7,787	...
Norman	7,000	...
Throssell	14,968	...
Warding	3,175	...
Mt. Hardey	9,803	...
Gwambygine	8,815	...
Cold Harbour	6,876	271
Marjidin	8,603	1,972
Clifton	2,836	95
Homebush	1,056	...
Mt. Erin	60,045	12,881
Stirling	9,000	200
Arrino	12,000	12,000
Bolgart	9,327	9,327
Wolya	3,500	3,500
Dudawa	11,868	*a*
Total	176,659	40,246

a Not yet available.

THE AGRICULTURAL DEPARTMENT.

The Agricultural Department of the State is equipped with a staff of experienced and scientific experts. These are at the service of those requiring information, which can always be obtained on application to the Department; where necessary, an expert is sent to give practical instruction on the farm. The Department comprises Horticultural, Viticultural, Entomological, Botanical, Analytical, Veterinary, Poultry, Bee, and Agricultural branches. The officers in charge of these branches are able, not only to advise, but to demonstrate the methods of procedure in every particular case.

In a State, comprising such an immense territory as Western Australia, there is almost every variation of climate and soil, and new settlers are often at a loss to know what are the most suitable crops or fruit trees to grow in a particular district, the best methods of cultivation to adopt, and the fertilisers best adapted for particular localities. On these and many other points information can be readily obtained on application to the Department of Agriculture, which will minimise the risk of loss that would otherwise be incurred.

Experimental farms and plots are established in nearly all districts, the results obtained from which are made public in

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the daily and weekly Press, and in the monthly *Journal* published by the Agricultural Department.

These experimental farms have been established in order to practically assist young men who have not had special experience in farming, but who wish to go in for agriculture. The farms, which are worked on a large scale, admit students for one or two years, so as to afford them a practical knowledge of cultivation, stock management, etc. They are stocked with high-class cattle, horses, sheep, pigs, and poultry, and a thorough instruction in the handling, working, and breeding of them is given. In order to obtain a general knowledge under varying conditions of climate, soil, and rainfall, a student may spend a year at each of two farms, situated in different districts, where he has also the benefit of a good library for studying the scientific and technical part of his work.

A staff of orchard inspectors visit all the orchards in the State at least once a year, imparting instruction as to the various diseases and insect pests they may discover, and prescribing remedial measures. At times, when deemed necessary, the department publishes bulletins on special subjects which can be obtained free on application.

Leaving out details, a short summary may be given of the most successful productions of the State. Wheat stands first, and it is anticipated that in time Western Australia will be one of the largest wheat-producing States of the Commonwealth. No climate suits the wheat plant better, while the rainfall is invariably sufficient. The quality of the wheat is so much above the average, that it more than holds its own in competition with samples from other parts of the world. It is estimated that there are 25,000,000 acres of wheat lands in the State. Other crops that do well are maize, oats, barley, peas, sorghum, rye, and all sorts of roots, such as potatoes and mangolds. Among fruits there is hardly an exception to favourable growth, the list including apples, pears, peaches, apricots, plums, quinces, oranges, lemons, mandarins, bananas, plantains, dates, pine apples, loquats, mulberries, figs, grapes, etc. The quality of the fruit is unsurpassed, and it is only a matter of a short time before there will be a large fruit export trade between here and Europe.

Bulletins on the following subjects have been published by the Department, and can be obtained free on application:—

Breeders' Tables.
Cattle, Breeding, etc.
Dingo, Trapping.
Horses, Breeding, etc.
Pests, Fungoids and Insect.
Potato and Onion Growing.
Poultry and their Management.
Poultry Feeding.
" Tick.
Silo Construction.
Stock, Hints to Breeders.
" Live, Judging by Points.
Strawberry Culture.

In addition, the Department has published an up-to-date "Handbook on Horticulture and Viticulture," by Mr. A. Despeissis, the H. and V. Expert, which can be obtained at a nominal charge.

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AGRICULTURAL BANK.

(By W. PATERSON, Manager.)

This institution was established by Act of Parliament in 1894, the Act being amended in 1896, and again in 1899. A further amending Act, materially extending the functions of the bank, was found necessary in 1902, and this in turn was again amended in January, 1904, and December, 1904.

The object of the 1894-9 Acts was to promote the occupation, cultivation, and improvement of the agricultural lands of the State, by making advances to cultivators of the soil on the security of their holdings:—

(1.) For the purpose of making improvements on unimproved holdings.

(2.) For adding to improvements already existing on their holdings.

The capital authorised for this purpose was £200,000. The clearing of land is viewed with special favour by the bank, and, wherever possible, assistance is given for that purpose. The other improvements recognised by the bank are cultivating, ringbarking, fencing, draining, wells for fresh water, reservoirs, and buildings. It is the policy of the bank to have its securities fenced before the full amount of a loan is paid, and if the manager considers that a sufficient area of the security offered is not securely fenced, such fencing as he considers necessary may be done concurrently with the proposed improvements.

The maximum amount that can be advanced under this Act is three-fourths of the fair estimated value of the proposed improvements, such advances must not exceed in the aggregate the sum of £800. All moneys are paid over in progress payments as the improvements are completed. Interest is payable on the actual sum advanced at the rate of 5 per cent. per annum, and each loan has a currency of 30 years, but may be repaid at any time at the option of the borrower without notice to the bank, and in the event of sale the bank offers no objection (except in the case of an undesirable client) to the purchaser taking over an existing mortgage.

Under the Amendment Acts, 1902-4, the manager is empowered to make advances to farmers and cultivators of the soil on the security of improved holdings for the following purposes:—

(*a.*) To pay off liabilities already existing on holdings.

(*b.*) To carry on farming and grazing, agricultural, horticultural, or viticultural pursuits on their holdings.

(*c.*) To add to improvements already made on their holdings.

The amount that may be advanced under this Act must not exceed two-thirds of the fair estimated value of the lands with the improvements thereon. In the case of horticultural and viticultural lands, the proportion is fixed at one-half. At least one-third of all

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approved loans must be expended in further improvements. The balance (two-thirds) may be applied with the bank's approval to any of the purposes enumerated in Clauses (*a.*) and (*b.*) The capital of the bank was increased first to £400,000, and next to £500,000, and the maximum amount to be advanced to any one person was fixed at £1,000. Repayments under this Act also extend over 30 years, excepting in the case of moneys advanced for the purchase of stock and machinery, when the date of repayment is fixed by the bank.

It is advisable in all cases that applicants should forward their applications at least two months before the money is actually required, as under the present system it takes from 6 to 8 weeks before a mortgage is registered, and the bank empowered to pay over moneys due.

So far the operations of the bank have been attended with complete success. A large number of people have been materially assisted to establish themselves speedily on the soil, and settlers with limited means are enabled to apply themselves continuously to the improvement of their holdings without having to resort to outside work in order to carry them over the unproductive stage of farm development.

Clients are meeting their obligations punctually, and judging from the transactions of the Bank the farming industry of the State is in a thriving condition.

The position of the Bank itself is not less cheerful; it has now reached the revenue-earning stage, the profit for the financial year 1903-4 being over £2,000. Since its inception it has only been necessary to write off interest to the extent of £10, this representing the total of bad and doubtful business to date.

While the provisions of the Agricultural Bank are in no way mandatory, every assistance compatible with safety is readily afforded by the Bank, and every *bonâ fide* applicant can approach the manager with the assurance that his application will have full and impartial consideration, and, wherever possible, be granted.

It may be added that a borrower from the Bank transfers his lease to the manager. If the first instalment of a loan should be spent on purposes other than those approved by the manager, further advances may be refused, and that already made called in. Only a first mortgage can be accepted. A valuator's fee of £1 per cent. of the amount applied for must accompany each application, and if the loan should be partly or wholly declined, the fee is not returnable. Certificates of improvements on which loan instalments are payable must be furnished by the mortgagor at his own expense.

The capital of the Bank is raised by the sale of Mortgage Bonds, and the moneys so raised, together with all interest, income, and repayments, to become payable in respect of any investments made under the powers conferred by the Agricultural Bank Act, are held in trust for the eventual repayment of the principal and interest moneys secured by such bonds. So far as funds for the payment of

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the principal and interest are not available under the operation of the Act, any such sum or interest is chargeable upon the Consolidated Revenue Fund. The Bonds are redeemable by annual drawings, commencing six years after the issue of the first of these securities.

The total amount of loans approved to 30th June, 1904, was £310,650, of which the sum of £215,000 had been paid to borrowers in progress payments; leaving a balance of £95,650 yet to be paid.

For the above sum of £215,000, lent on mortgage, improvements had been effected by applicants on their holdings, which the Bank holds as security, to the value of £377,080, including the clearing of 110,281 acres, the cultivation of 74,493 acres, ringbarking of 97,273 acres, 51,919 chains of fencing, drainage works, wells, dams, reservoirs, farm buildings, etc. Of the total sum advanced, £29,122 were for the purpose of paying off liabilities, the purchase of stock and plant, fertilisers, etc.

For the sum of £95,650 approved, but not yet paid, improvements were in progress to the value of £129,387.

The total profit of the bank to 30th June, 1904, amounted to £3,025.

During the year preceding that date 877 applications had been received, and 768 loans approved, the latter for an aggregate amount of £109,450.

MISCELLANEOUS.

Busselton Butter Factory.

The Busselton Butter Factory has been in operation since February, 1898. The factory is well equipped with a modern plant for making butter from the yield of about 1,000 cows; but more attention is paid to purveying milk and cream, because that trade permits the firm to pay the dairymen a higher price for milk. The milk and cream are Pasteurised before being sent to consumers. The firm has done much to encourage dairying in the Busselton district; but they contemplate a much larger scope of operations, including the erection of a factory at East Perth and the establishment of additional plants to concentrate and condense milk. Their aim is to gradually supplant the importations of butter, milk, bacon, and cheese, which, as Fremantle merchants, they now indent largely, recognising that the production of the fresh article in the State will benefit both producers and consumers. When plans are fully developed, receiving stations and creameries will be established at intervals along the South-Western railway to collect the output of dairies, for consignment to Perth. The prospect of a steady market thus given to suppliers, has already proved an incentive to the dairymen of Busselton to grow crops for the feeding of their cows, and to increase and improve the quality of their herds, in a word, to work on modern dairying lines. The rate of payment for milk is sixpence per gallon when the supply is plentiful, and 7d. per gallon at the end of the summer, the skim milk being returned free to customers. Cream is also purchased for butter-making. So

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far the operations of the factory have been, to some extent, limited by the quantity of milk and cream available not being equal to the capacity of the plant. There is, however, plenty of room for new comers who will find that the Busselton district is one of the best dairying districts of the State. The soil, climate, and rainfall all conduce to make the pursuit a leading one, and it should be borne in mind that hardly anything increases the value of land so rapidly as dairying, with its auxiliaries of pig-breeding, bacon-curing, and poultry. Since the butter factory has been in existence there has been a steady improvement in the butter fat percentage of the milk supplied.

Students for Experimental Farms.

The regulations in connection with the admission of students at the experimental farms are as follows:—

(1.) The minimum age of students for admission is 16 years.

(2.) Students are required to pay a fee of 10s. 6d. per quarter, and to provide themselves with such bed-linen and towels as they may require.

(3.) The Government finds bed, mattress, washing utensils, board and room.

(4.) Students make their own arrangements as to washing their clothes.

(5.) The teaching is a practical course of agriculture, the use of various farm implements, sowing, reaping, etc.; and students are required to do physical work in all branches of farm labour.

(6.) Students whose work or conduct is not satisfactory may be dismissed at any time.

(7.) Agricultural books are provided from which students can study.

Horned Stock in the South-West.

Along the coast cattle can be kept under favourable conditions, if one or two lessons of experience are borne in mind. Although the country is so healthy for stock that the ordinary diseases are comparatively rare, a local trouble variously known as partial paralysis, rickets, and "wobbles," has to be guarded against. The complaint is best described by the term partial paralysis, for the beast affected is so far crippled that it has imperfect control of the muscles of the hindquarters, and is very unsteady in its gait, rolling from side to side, and half turning at times to keep itself from falling. The cause of the attack is somewhat obscure, although there is no doubt that the eating of the zamia palm is blamable in some cases. Yet a beast may eat the palm and not get rickets, or it may succumb after having escaped for years. But while there is a great deal to learn as to the precise conditions that give rise to "wobbles," there is no doubt that the preventive treatment is to turn the herd occasionally upon stubbles or other land that has been cultivated, especially after a bush fire has gone through the uncleared paddocks.

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The settlers in the early days always used to rely upon a "coast change" to keep their stock well and in good fattening condition. In other words, beasts bred in the hills or on the plains immediately below the highlands, where lime and salt are somewhat deficient, found a trip to the shores of the ocean for two or three months of the year so beneficial that such a removal came to be regarded as almost indispensable. In those days, however, little cultivation was done, and cleared land has been proved to be as good as coast land, especially if bonedust has been the fertiliser used in cropping. An incentive has also been given to clearing by the discovery that the added value of the ground for grazing alone repays the cost of the work.

Modern Dairying.

Another advance, that has not only a local but a general application, is shown in the difference between old and new methods of dairying. The use of the separator and other appliances by the modern dairyman, together with the better feeding of his cows and the larger and more regular yields of milk consequently obtained, show a very great advance when compared with earlier examples of the industry. It is now recognised that the artificial and liberal feeding of cows all the year round is essential to successful butter-making. It is not sufficient to rely on pasturage; silo must be made or fodder crops grown for the milking herd, if good results are expected. An article in the *Australasian* emphasises these points excellently and tersely, as follows, under the heading of "The Plough in Dairying": —"The dairy farmers of the western district are finding, from experience, that the luxuriance of the pasture does not exempt them from the need for an improved system of regulating the natural supply of feed in such a way as to make it more even throughout the year. In discussing the subject at the meetings held by Mr. T. K. Dow, the special lecturer upon cattle-feeding, farmers who are dairying upon the fertile region between Terang and Port Fairy have come to the general conclusion that the extraordinary productiveness of the spring and early summer months ought to be taken advantage of, for the purpose of supplying the deficiency of the autumn and winter. In the late summer and autumn there is plenty of grass, but it is not sappy enough to maintain the flow of milk, while in the winter the grass is deficient in both quantity and quality as compared with the luxuriant growth of spring. It is recognised that a mistake has been made in regarding dairying as a purely grazing industry, instead of one necessarily connected with the cultivation of the soil. The grazier can stock heavily in spring and early summer. His stock will fatten upon the drying grasses at the turn of the year, and he can sell off fats, or otherwise reduce his flocks or herds, as the period of comparative scarcity approaches. But it is quite different with the dairy farmer. The methods of the grazier do not meet his requirements. His valuable dairy herd must be maintained all the year round. In following the grazing

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system, he has too few cattle where the grass is good and too many where it is bad. Hence the need of the better systems which the advanced dairy farmers of the district are adopting, and whose example Mr. Dow is urging the others to follow. Some are providing mangolds and grass hay, and others are, in addition, adopting the ensilage system. The lecturer is not advocating the use of ensilage in the place of any method of providing supplies of fodder already adopted, but as a valuable additional means of accomplishing the object in view. There is a decided movement in favour of employing the plough and the mowing machine more extensively in connection with the dairying industry of the district."

The Poultry Yard.

(By Mr. F. H. Robertson.)

Western Australia spent, during the year 1904, £85,025, and during the last 10 years no less a sum than £575,476, in importing eggs and poultry which ought to have been produced in the State. The average price of eggs in the Perth wholesale market is stated to be about 1s. 10d. per dozen; fowls for table bring from 5s. to 10s. per pair. There is also a great demand for poultry and eggs on the goldfields, where fowls have not as yet been successfully raised to any sufficient extent. Most farmers admit that poultry pay well, but the high prices obtainable for produce have, up to now, caused the fowl-yard to be neglected. It is a most unbusiness-like way of looking at things, to neglect any branch of farm income that will yield a profit on the employment of labour. As to the keeping of poultry under healthful conditions, tree shelter is recommended, close and warm houses not being necessary in so mild a climate as ours. The quick growing castor-oil tree, with its thick foliage, gives plenty of protection and perching room. When trees cannot be had, cheap shelter sheds can be put up. These should not be built against a fence, which helps the spread of tick. Perches are best all on one level, and about two feet from the ground. Only one breed should be kept; the purer the better. Ducks and fowls should not be kept in the same yard, as they require different treatment. Grade the birds when selling them. A crate of birds all uniform in size and colour is sure to bring a better price in the market than a variegated lot. For egg supply, Minorcas, Leghorns, Hamburgs, and Andalusians are among the best. A Perth record for Minorcas, for 12 months, was 219 eggs per hen. Choose birds that are bright-looking and active, with good-sized combs. Orpingtons, Wyandottes, Plymouth Rocks, Dorkings, and Houdans are known as all-round breeds. Malays and Indian game are the best of the table breeds, the latter being the better layers and finer in flesh.

As regards the ready sale for poultry, it is also stated that one buyer alone spends £2,000 per annum in importing table fowls. The total sum expended on this item in 1904 was £4,970, hence there must be an excellent local market. The demand is for big birds. The plump and delicate-flavoured chicken that is killed at two or three months for the English, American, or French

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markets is not favoured in Western Australia. The keeper of poultry who buys all the grain feed must look for his profit to the eggs; but the farmer, with his stubble fields and waste grain, can probably get more money out of his table birds in this State than he could in any other part of the world. If chickens are hatched in June and July they will be ready for the Christmas market. The purchasing of poultry by weight would be greatly preferred by the principal buyers in the Perth market, and the producer would find it to his advantage. There is room for great development in the local poultry industry, as if it pays South Australian farmers to send eggs here, paying packing, insurance, freight, commission, etc., amounting to nearly 4d. per dozen, the market must be worth securing for the home producer.

Fowls are best kept at liberty on land having grass, grit, clean water, and insect life. Under such conditions there will be little sickness, little labour in tending, and a good supply of eggs, provided a good class of poultry is kept. Every settler is advised to keep poultry from the time he first takes up his block, instead of waiting to do so until he gets his new place in order. Also, it is a mistake not to leave some scrub shelter uncleared near the homestead for the shelter of poultry.

Bee-keeping.

(By Charles Cook.)

This State is particularly adapted for the expansion of apiculture, the success of which is to a great extent determined by natural conditions, more particularly those climatic. A regular supply of food, and the resultant seasonable honey flows, are necessary to place this industry upon a secure foundation. In many parts of the Eastern States the honey industry is a precarious one, owing to the irregularity of the seasons and the periodic appearance of drought. Here the regularity of the seasons removes this peril, and it is only in a very exceptional season that the colonies do not show a remunerative return; while handsome returns are not of rare occurrence. The spring coat of flowers which covers the greater portion of this State affords a regular source of food during the breeding period, making the colonies strong and able to deal with the later honey flows. The winters, if in some districts they are somewhat wet, are on the whole mild; and the problem of wintering, which is hard of solution in many countries, gives no trouble here.

As the local natural conditions are eminently adapted to the successful expansion of apiculture, bee-keeping is to be recommended as a branch of mixed farming. By combining industries, the risk of loss in one industry in any season is covered by the returns derived from the other sources of revenue. Some of those who find the labours of the bee most profitable are those who regard bee-keeping as a sub, rather than a main industry. Orchardists without bees are without the best agent for securing a full setting

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of the fruit. Market gardeners benefit to an equal degree, and the attention necessary to the upkeep of a small apiary is so light that farmers' wives, daughters, or younger sons can easily render it. A further advantage of bee-keeping to the mixed farmer is that the return from the hives is quick; and this fact, to the orchardist and others, whose profits are only attained after years of waiting and working, is often a matter of vital importance.

The local market conditions are, so far, gratifying to the producer of honey. The customary methods are to supply in bulk, that is, in 60lb. tins or in 2lb. tins. The former is a somewhat rough and ready method of supplying the market, but so long as wholesale buyers will give a remunerative price to the producer for his honey in this crude form—and there appears at present to be no prospect of an immediate alteration in market conditions—it is not likely that the more attractive methods adopted by American apiculturists will be introduced here.

The bees kept should be either pure Italian or have a well-marked strain of Italian blood in them. This kind is less prone to swarm than other bees, and a breed of bees with a strong tendency to swarm, is a scourge in the spring, which is only properly appreciated by experienced bee-keepers. The hybrids are also extremely vigorous, being little subject to disease, and the queens are prolific layers. The bee-moth is an easy victim to Italian bees or their hybrids, while bees without this strain are often easy victims to this almost ubiquitous enemy.

The hives used should be the standard Langstroth, 8 or 10 self-spacing frames. The cost of bee appliances was at one time almost prohibitive in this State, but the increased demand has encouraged competition among dealers, and prices are now more reasonable. Such being the case, hives of standard sizes should be procured; the advantages of uniformity, in procuring duplicates and appliances, such as extractors, to size, being too great to be overlooked.

The following additional appliances are necessary:—A smoker, bee veil, a few queen cages, an extractor, an uncapping tin and knife, and a foundation embedder.

Those not thoroughly versed in the ways of the bee should begin on a small scale, namely, with a few hives, in full working order, purchased from an experienced and reliable bee-keeper.

Public Water Supply.

In comparatively dry districts, special steps are taken for the supply of water for settlers and stockmen. The Public Works Department has put down bores in the districts of Goomalling, Beverley, East Beverley, North Beverley, Yandanooka, and Three Springs in the Arrino district, and in many places on the Great

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An Apiary.

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Southern Railway line; and has struck water in each case. A great deal of work has been done towards the creation of a continuous stock route from the Fitzroy River to the Eastern Goldfields. In all, 18 new wells have been sunk, and 10 wells have been improved. The route is now complete, and has been gazetted. On the new route from Eucla to Coolgardie, boring operations are in hand (says the Chief Engineer's report for 1904), with the object of fixing sites for wells. Two underground tanks are in course of construction.

During an examination of the country along the proposed Trans-Australian Railway route, with the object of discovering artesian water, at a spot 60 miles from the coast and 30 from a station called Madura, water excellent for stock, and even fit for human consumption, was struck at a depth of 411ft., the total depth bored being 430ft. At Madura, water suitable for stock was struck at a depth of 2,101ft., the flow being 70,000 gallons.

This examination also corrects the impression that this country is a barren, inhospitable sand waste, as, with the exception of a narrow range of sand hills about 3 miles wide near the coast, the country is a light loam over a substratum of limestone, heavily timbered and covered with forage bushes and grasses. The soil near the coast is very rich from the sheddings of a belt of ti-tree thicket, that is almost impenetrable. Clear of this belt, which is several miles wide, proceeding north, the country is nicely timbered with mallee, mulga, and a bush locally known as "sugar-tree." The mallee, in the neighbourhood of the cliffs, gets very thick and large in size. The dwarf scrub is very dense, consisting of salt-bush, blue-bush, cotton-bush, natural grasses, and other fodder plants. Above the cliffs the timber is lighter, but of a similar description; but at about 35 miles from the cliffs, and somewhat over 60 miles from the seaboard, the timber ceases, and gives place to undulating plains, which, in good seasons, are magnificently grassed. These plains, upland and lowland, are dotted with what are termed "blow holes," which are a very peculiar feature, acting, as they do, as vents and drains. They emit a roaring noise, and blow in or out according to the wind. After heavy rains, considerable streams run into them. This explains why there is, despite a fair rainfall, but little surface water and there are but few streams. Over 10,000,000 acres of country, on examination, proved well fitted, given water, for pastoral settlement, and the bores put down have demonstrated that the water exists. It is probable also that a very much greater area of similar country is available.

Goldfields Water Scheme.

Western Australia has carried out the largest pumping scheme in the world in completing her Goldfields Waterworks, at a cost of £2,650,000, and now has a plant capable of conveying a permanent

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supply of about 5,000,000 gallons daily a distance of about 350 miles—from Mundaring to Kalgoorlie. Mundaring is situated in the Canning Hills, about 20 miles from Perth. The average annual rainfall of the watershed is about 30 inches, and this enabled the Government to confidently anticipate that the reservoir, in which the Helena River is impounded, would never be short of water. A weir, 100 feet high, with foundations which in one place go to a depth of 90 feet, was made across the river, and a dam constructed with a storage capacity of 4,600,000,000 gallons. So entirely were the Government's anticipations realised, that during the winter of 1903 the stream was flowing to waste over the bywash. The river is dammed back for seven miles, forming a magnificent sheet of water, in which perch, trout, and other fish have recently been placed. To keep the water pure, the catchment area, which extends to within 15 miles of York, has been reserved from further settlement.

A 30-inch main pipe is charged by eight powerful pumping plants. The water is pumped, in two stages, to a regulating tank at Baker's Hill, whence it gravitates through Clackline to Northam which has a complete system of reticulation for the town. Thence it goes through Grass Valley, Meenaar, and Meckering to Cunderdin. The main is fed at the latter place by a pump that carries the supply to Wyola, Tammin, Bungulla, Kellerberrin, Woolundra Doodlakine, Baandee, Hine's Hill, Nangeenan, and Merredin. There pumping station No. 4 lifts the water past Booran, Burracoppin, Walgoolan, and Carrabin to Yerbillon. Here a pumping station sends the stream to Ghooli and Southern Cross, which mining centre has an extended reticulation service. Three more lifts take the supply to a 12,000,000-gallon reservoir at Bullabulling, whence it gravitates to Coolgardie and Kalgoorlie, for the benefit of which places mainly the scheme was initiated.

Settlers along the route of the main are supplied from it at the following rates, which are payable in advance: 12,000 gallons, 5s. 6d. per 1,000 gallons west of Cunderdin; 6s. 6d. per 1,000 gallons east of Cunderdin. For a minimum of 24,000 gallons, sixpence less per thousand is charged. Water for market gardening purposes is supplied at 3s. to 4s. per 1,000. Pipe connections are made at the expense of the consumer. Private standpipes on the main cost £5 each. If two or more persons combine to obtain a joint service, the charges are the same as for a single service.

The business control of the scheme is in the hands of the Hon. the Minister for Works. The regulations are made elastic enough to meet the varying conditions of the extended area in which the water is sold. Any quantity of the water, which is of the best quality, can be obtained by consumers at any time of the year, so that settlers *en route* can undertake the keeping of stock even in the drier areas without any fear, in an exceptional season, of wells going dry.

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Harvesting on the Goldfields, Coolgardie.

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FREIGHT CHARGES ON CERTAIN GOODS, ETC., CARRIED ON THE WEST AUSTRALIAN GOVERNMENT RAILWAYS BY GOODS TRAIN.*

Articles.	Miles. 50	100	200	300	400	500	Remarks.
	per ton. s. d.	per ton. s. d.	per ton. s. d.	per ton. s. d.	per ton. s. d.	per ton. s. d.	
Local Produce :—							
Hay, straw and chaff, minimum 3 and 6 tons per 4 and 8-wheeled wagon ...	7 11	10 9	13 9	15 9	17 9	19 9	Up journey only, *i.e.*, from any inland station to any port, or in the direction of any port.
Wheat, oats, barley, potatoes, onions, bran, flour, pollard, minimum 5 and 10 tons per 4 and 8-wheeled wagon ...		12 6	21 3	28 9	30 6	32 6	
Imported produce (same articles)	7 11	12 6	21 3	28 9	35 0	41 3	
Local or imported, smaller quantities ...	*a* 10 10	16 8	28 4	38 4	46 8	55 0	
Fruit and garden produce, lots 4 tons ...	7 11	12 6	21 3	28 9	35 0	41 3	
Smaller lots	*a* 10 10	16 8	28 4	38 4	46 8	55 0	
Wine local, 4-ton lots	7 11	12 6	21 3	28 9	35 0	41 3	
Do. 2-ton lots	10 10	16 8	28 4	38 4	46 8	55 0	
Do. Less quantities	*a* 18 4	33 4	60 0	83 4	103 4	120 0	
Fruit trees	*a* 23 2	43 9	78 9	109 5	135 8	157 6	
Passenger Train :—							
Milk	1d. per gallon	1d. per gallon	1½d. per gallon	1¾d. per gallon	2d. per gallon.	2¼d. per gallon	
Butter, poultry (dead)	Half ordinary parcels rates.						
Eggs							
Single packages of local butter, eggs, fruit, and wine	1 0	1 0	1 9	2 3	2 6	2 9	Up to 90lbs.
Up journey only	1 0	1 3	2 3	2 9	3 3	3 6	91 to 112lbs.
Butter, minimum, 10 cwt.	10 10	16 8	28 4	38 4	46 8	55 0	

* Except where otherwise stated.

a Plus 2s. per ton for loading and unloading consignments of 5cwts. and under, and if consignments exceeding 5cwts. are handled by Department, the same addition to rate will be made.

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Freight Charges on certain Goods, etc., carried on the West Australian Government Railways by Goods Train—continued.

Articles.	Miles. 50	100	200	300	400	500	Remarks.
	per ton. s. d.	per ton. s. d.	per ton. s. d.	per ton. s. d.	per ton. s. d.	per ton. s. d.	
Eggs, packed							
Poultry, dead, minimum 1 cwt., C.R.							
Do. alive in crates, etc., minimum 1 cwt., O.R.	a18 4	33 4	60 0	83 4	103 4	120 0	
Poultry in Commissioner's crates at owner's risk	2 6	4 6	6 6	8 0	9 0	10 0	Per coop. Each coop capable of holding 12 pairs of fowls or ducks or 8 pairs of turkeys or geese.
By Passenger, Mixed or Goods Trains within the Suburban Area:—							
Fresh and frozen meat in lots of 1 ton and under, O.R.	Seven-	pence (7d)	per cwt.,	minimum	three-	pence (3d)	
In lots of over 1 ton, when meat vans are used, the minimum charge will be 11/8	18 4	33 4	60 0	83 4	103 4	120 0	
In cool storage vans...	Half	ordina y	parcels	rates;	minimum	2 tons.	
By Passenger Trains outside Suburban Area:—							
Fresh and frozen meat	Half	ordinary	parcels	rates;	minimum	3d.	
Do. do. in cool storage vans	Full	ordinary	parcels	rates;	minimum	6d.	
By other than Mail and Express Trains—							
In lots of 10cwts. and over	22 11	41 8	75 0	104 2	129 2	150 0	
In lots of 1 ton and over	18 4	33 4	60 0	83 4	103 4	120 0	
When meat vans are used, minimum charge, 11s. 8d.							
In cool storage vans, in lots of 2 tons and over		Half	ordinary	parcels	rates.		
In cool storage vans, in lots under 2 tons		Full	ordinary	parcels	rates.		

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Meat, fresh and frozen	a 18 4	33 4	60 0	83 4	103 4	120 0
Do in cool storage vans, minimum 2 tons ...	23 2	43 9	78 9	109 5	135 8	157 6
Wool, undumped	a 18 4	33 4	60 0	83 4	103 4	120 0
Do dumped and hooped with iron	a 16 6	30 0	54 0	75 0	93 0	108 0
Hides and skins in bundles, C.R.	a 18 4	33 4	60 0	83 4	103 4	120 0
Do loose, O.R.	a 20 2	36 8	66 0	91 8	113 8	132 0
Bags and sacks, in bales, 4-ton lots	7 11	12 6	21 3	28 9	35 0	41 3
Do smaller lots, minimum 10cwts.	10 10	16 8	28 4	38 4	46 8	55 0
Tallow, minimum 10cwts.	10 10	16 8	28 4	38 4	46 8	55 0
Timber, W.A. hardwoods	6 11	10 3	16 1	21 1	25 3	29 5
Do imported	16 3	25 0	42 6	57 6	70 0	82 6
Corrugated, galvanised, or sheet iron, in cases, C.R.	a 18 4	33 4	60 0	83 4	103 4	120 0
Corrugated, galvanised, or sheet iron, loose, O.R.	a 23 2	43 9	78 9	109 5	135 8	157 6
Fencing wire, in consignments under 2 tons	a 13 7	20 10	35 6	47 11	58 4	68 9
Fencing wire, in consignments 2 tons and over	10 10	16 8	28 4	38 4	46 8	55 0
Implements, agricultural, O.R.	a 18 4	33 4	60 0	83 4	103 4	120 0
Tools, packed, O.R.	a 23 2	43 9	78 9	109 5	135 8	157 8

a Plus 2s. per ton for loading and unloading consignments of 5cwts. and under, and if consignments exceeding 5cwts. are handled by Department, the same addition to rate will be made. C.R. Commissioner's risk. O.R. Owner's risk.

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Concessions to Land Selectors when first proceeding to permanently settle on the Land.

(See pages 51 and 101 of Rate Book.)

Settlers taking up Land within the State.

On production of a certificate signed by the Under Secretary for Lands, certifying that the applicant is a *bonâ fide* selector and has purchased land from the Government, the following concessions will apply:—

A 6-ton truck will be placed at any Station on the Government lines for the conveyance of goods and chattels of selectors who have purchased land from the Government when first travelling to permanently settle on their land, and conveyed to any Station on the Government lines nearest to the selector's holding, for £6; or a 12-ton truck for £10, owner's risk. Also a small four-wheeled and a large eight-wheeled truck of live stock will be conveyed for £6 and £12 respectively, subject to the usual conditions as to loads, etc.

Furniture, smaller quantities than provided for above	Class 2, O.R.
Farming plant or implements, second-hand, smaller quantities than provided for above	Class B, plus 50 p.c., O.R.

Settlers from the Goldfields.

On production of certificate signed by the Under-Secretary for Lands, certifying that the applicant is a *bonâ fide* selector and has purchased land from the Government, the following fares will apply to selectors when first travelling to permanently settle on their land, from any Station on Government lines to any Station on Government lines nearest to the selector's holding:—

Selector	Ordinary single fare.
Wife and other members of the family	Half ordinary single fare.
Children above 5 and under 14 years of age	Quarter ordinary single fare.
Children not exceeding 5 years of age	Free.

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Parcels Rates.

The following is the Scale of Charges for the conveyance of Parcels by *Passenger* and Mixed Trains:—

Miles not exceeding.	3lbs. and under.		Over 3lbs. and up to 7lbs.		Over 7lbs. and up to 14lbs.		Over 14lbs. and up to 28lbs.		Over 28lbs. and up to 42lbs.		Over 42lbs. and up to 56lbs.		Over 56lbs. and u to 4lbs.		Over 84lbs. and up to 112lbs.		Every additional 28lbs. or part thereof.	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
25	0	3	0	3	0	6	0	6	0	9	1	0	1	6	2	0	0	6
50	0	6	0	6	0	9	1	0	1	6	2	0	2	9	3	6	0	9
75	0	6	0	6	0	9	1	3	2	0	2	6	3	6	4	3	0	9
100	0	6	0	9	1	0	1	6	2	3	3	0	4	0	5	0	1	0
150	0	9	0	9	1	3	2	0	2	9	3	6	5	0	6	3	1	3
200	0	9	1	0	1	6	2	3	3	0	4	0	5	9	7	6	1	9
250	1	0	1	0	1	6	2	6	3	6	4	6	6	6	8	3	1	9
300	1	0	1	3	1	9	2	9	3	9	5	0	7	0	9	0	2	0
350	1	3	1	6	2	0	3	0	4	3	5	6	7	9	10	0	2	3
400	1	6	1	9	2	3	3	6	4	9	6	0	8	6	11	0	2	6
450	1	9	2	0	2	6	3	9	5	3	6	6	9	3	12	0	2	9
500	2	0	2	3	2	9	4	3	5	9	7	0	10	0	13	0	3	0
Over 500	2	3	2	6	3	0	4	9	6	6	8	0	11	6	15	0	3	6

Ambulance Stretchers (folding), Bedsteads (in bundles), Deck Chairs (folding), Window Sashes, and Wire Mattresses, ordinary Parcels Rates.

Aerated Waters, Colonial Ale and Stout, Bacon, Brawn, Bread, Butter, Cakes, Cheese, Confectionery, Corned Beef, Eggs, Flowers, Fruit, Fruit Trees, Game, Hams, Honey, Frozen Milk, Oysters, Potted Beef and Fish, Pastry, Poultry (dead), Vegetables, and Colonial Wine, half Parcels Rates. Minimum, 3d. When carried in Cold Storage Van, ordinary Parcels Rates. Minimum charge, 6d.

Automatic Machines for use on Stations, by Passenger Trains at Goods Rates.

Barometers, Stuffed Birds and Animals (in cases), Furniture (light), parcels containing brittle articles such as Glass, China, and Porcelain, Pasteboard boxes of Light Millinery or Feathers, Picture Frames, Ships' Chronometers, Thermometers, and Violins, ordinary Parcels Rates, plus 50 per cent.

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2.—AGRICULTURE.

(By Alex. Crawford, Acting Director of Agriculture.)

Western Australia contains within its borders 624,588,800 acres of land. Up to the close of 1903, out of this vast area only 3,562,730 acres were alienated from the Crown, while at the same time 7,065,728 acres, selected under various Acts, were in process of alienation. In other words, the State had at that period only parted with a trifle more than half per cent. of the public domain.

There are still millions of acres available for selection within the South-Western, Southern, and Eastern Districts, and as settlers are now largely taking advantage of the liberal land laws, the area under crop shows a healthy annual increase.

Land Selection.

The rapidity with which land is being taken up by new settlers in Western Australia is shown by the fact that, whereas in 1900 a total area of 287,447 acres had been conditionally alienated, the acreage so selected during 1904 was no less than 1,461,759. The following table gives the particulars of conditional alienation in the State for the past five years:—

Year.	Conditional Alienation.					
	Conditional Purchases.	Free Homestead Farms.	Grazing Leases.	Selections under Land Purchase Act.	Poison Land Leases.	Total.
	Acres.	Acres,	Acres.	Acres.	Acres.	Acres.
1900 ...	157,198	50,855	72,649	6,745	...	287,447
1901 ...	210,259	64,204	63,020	4,061	11,180	352,724
1902 ...	260,186	95,917	215,598	11,540	10,165	593,406
1903 ...	564,982	277,727	306,941	6,862	11,371	1,167,883
1904 ...	687,465	234,916	485,587	42,332	11,459	1,461,759

A similar rapid increase is noticeable in the figures relating to pastoral leases, the area taken up under such leases in 1900 being 8,163,224 acres, whilst in 1903 the corresponding acreage was 32,502,585, and in the following year 28,878,589.

Information particularly useful to the intending settler with regard to the surveyed agricultural areas open for selection is contained in the following statement:—

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:uality of Land, etc.	Opened for Selection.
uit	6th January, 1902
... ...	2nd April, 1894
timbered. No surface water—plenty by	20th March, 1895
mixed farming	11th September, 1893
do.	2nd December, 1901
uit, and vegetable growing, and dairying	1st June, 1892
f cereals	7th December, 1892
uit	6th June, 1902
tensively watered	8th February, 1892
les, and cereals	4th September, 1893
ls and fruit	20th March, 1895
... ...	17th February, 1897
cereals	2nd April, 1894
Timbered with jam, gimlet wood, and	6th December, 1894
mon gum, gimlet, and morrell)	29th July, 1897*
... ...	2nd June, 1897*
n growing	27th March, 1893
tables, fruit, and cereals	3rd January, 1893
etables, especially potatoes, and dairying	1st January, 1890
ruit	1st February, 1892
... ...	22nd August, 1902
als and fruit	1st November, 1894
etables, and fruit. Water obtainable at	24th April, 1889
ably situated to supply wants of Yilgarn	
Timbered with jam, gimlet wood, and	11th November, 1896
mixed farming	10th July, 1893
cereals and fruit	1st August, 1894
... ...	20th May, 1896
... ...	3rd January, 1893
als and fruit	2nd October, 1893
lly adapted for potatoes and other root	20th August, 1894
nd pig breeding	
... ...	9th April, 1894
arce. Suitable for cereals and fruit ...	17th September, 1894
, and specially adapted for fruit	1st May, 1897
able for fruit growing	1st November, 1892
do.	10th December, 1900
his area contains some of the finest agri-	8th March, 1893
ving land in the State	
Suitable for growth of vegetables, fruit,	1st August, 1894
ls	1st November, 1892
ruit	13th March, 1893
y light rainfall	16th October, 1899

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Agricultural and Pastoral Labour.

According to the returns obtained under the Industrial Statistics Act, there were, in the year 1903, in Western Australia, 6,486 men and 375 women regularly employed on farms; 411 men and 377 women in dairies; 898 men and 43 women in orchards and vineyards; 1,500 white men and 72 white women in pastoral pursuits; and in the latter also 2,266 male and 1,588 female aborigines, making a total of 11,563 male and 2,455 female hands. The figures for the three great divisions of the State were as follows:—

Divisions.	Agricultural.		Pastoral.				Total.	
			White labour.		Aborigines.			
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
	No.	No.	No.	No.	No.	No.	No.	No.
uth-Western	7,589	755	498	14	241	76	8,328	845
orthern and North-Western	36	24	692	43	1,732	1,331	2,462	1,398
ntral and Eastern ...	170	16	310	15	293	181	773	212
Total ...	7,795	795	1,500	72	2,266	1,588	11,563	2,455

The totals in 1896 were—7,106 male and 1,602 female hands. The increase, therefore, during seven years, was 4,457 male and 853 female hands.

Accurate information concerning the number of males engaged in agricultural and pastoral pursuits in this State is, of course, only available at the time of a census, the totals so returned at the census of 31st March, 1901, being 8,322 and 1,983 respectively. Allowing for the increase in population which has taken place since that date, and taking into account the fact that many persons previously employed in mining and other pursuits have in recent years turned their attention to the agricultural and pastoral industries, it appears probable that the white male population engaged in agricultural pursuits is at the present time not less than 11,000, while the total number of white males engaged in pastoral pursuits is probably little short of 2,500.

At the census of 1901, the number of full-blooded aboriginals returned as engaged in agricultural pursuits was 118 males and 43 females, the corresponding figures for the pastoral industry being 1,610 males and 963 females.

Of a total of 25,626 bread-winning males in the Metropolitan Division on the 31st March, 1901, there were 1,218, or somewhat less than 5 per cent., engaged in agricultural pursuits, while 296, or

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less than $1\frac{1}{4}$ per cent., were engaged in pastoral pursuits. In the other portions of the South-Western Division, out of a total of 20,552 bread-winning males, no fewer than 6,911, or nearly 34 per cent., were engaged in agriculture, and 662, or about $3\frac{1}{4}$ per cent., in pastoral pursuits. In the Central and Eastern Division the agricultural and pastoral industries were poorly represented, the total of 34,823 bread-winning males containing only 111, or about $\frac{1}{3}$ per cent., engaged in agriculture, and 343, or slightly less than 1 per cent., in pastoral pursuits. In the Northern and North-Western Division, with a total of 4,381 bread-winning males, 82, or about 2 per cent., were engaged in agriculture, and 682, or $15\frac{1}{2}$ per cent., in pastoral pursuits. The foregoing figures are, in each case, exclusive of full-blooded aboriginals.

In order to allow of a comparison between the numbers of the population engaged in agricultural and pastoral pursuits in the divisions referred to, and the areas under crop, together with the number of live stock in each, the following two tables are added:—

Division.	Area under Crop during Season ended 29th February, 1904.							
	Wheat.	Oats.	Barley.	Hay.	Potatoes.	Orchards and Vineyards.	All other Crops.	Total.
	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.
Metropolitan ...	49	44	3	1,762	300	1,355	1,915	5,428
South-Western...	137,865	14,523	3,606	105,768	1,514	9,834	3,409	276,519
Central and Eastern	32	1	...	1,453	8	45	103	1,642
Northern and North-Western	...	...	...	19	1	28	115	163
Total ...	137,946	14,568	3,609	109,002	1,823	11,262	5,542	283,752

Particulars relative to the number of Live Stock in each Division on 31st December, 1903, are as follows:—

Division.	Number of Live Stock on 31st December, 1903.						
	Horses.	Cattle.	Sheep.	Pigs.	Camels.	Mules and Donkeys.	Goats.
Metropolitan ...	6,039	7,077	2,696	4,135	...	1	214
South-Western ...	42,291	77,095	842,588	37,244	15	38	2,030
Central and Eastern	13,491	33,840	317,589	7,090	1,789	427	4,373
Northern and North-Western	20,926	379,605	1,437,760	1,740	227	134	7,503
Total ...	82,747	497,617	2,600,633	50,209	2,031	600	14,120

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CULTIVATION.

The cultivation of cereals was for many years confined to the Greenough, Newcastle, Northam, York, Beverley, and Williams districts; but within the last few years it has been extended, and is now in evidence from 125 miles to 150 miles East of the coast, along the Yilgarn Railway, and also North in the district lying round Northampton. Although in the Eastern portions of both these localities the rainfall is light, it seems to usually come about the right time of the year, and good returns, especially of hay crops, are then assured. Grain would do well also, but on account of the seasons being very early, the farmers frequently find that converting their crop into chaff and getting it into the market some weeks before other districts, pays much better than to let it ripen for grain. The land fit for wheat-growing in Western Australia is of very considerable extent, stretching from the Southern portion of the Great Southern Railway to some 25 miles North of Northampton. The quality of the wheat grown is very high, the weight of the fair average quality bushel for the 1904-5 crop having been fixed at 62lbs. by the Corn Committee of the Perth and Fremantle Chambers of Commerce, the weight of the samples varying from 58½lbs. per bushel (the lowest) to 65lbs. (the highest). In exhibition, against wheats from all other parts of the world, Western Australian wheat has been able to more than hold its own, the Grand Prix at the Paris Exhibition having been obtained by a five-ton lot sent by this State. The chief feature which, of late years, has attracted so many settlers from the other States to this State is the almost entire absence of droughts, together with the wonderful sufficiency and regularity of the rainfall, which, although not heavy in many districts, is so well distributed as to warrant the certainty of at least a fair crop. For many years past the general average wheat yield for the whole State has exceeded 10 bushels per acre, and that in face of the fact that fertilisers were but little used. Most of the soils are rich in nitrogen and potash, but would be greatly improved by the addition of a phosphatic manure, a fact which the farmers are just now realising and commencing to take advantage of. With a greater use of phosphates, there is no doubt but that the general average could easily be increased to at least 15 bushels per acre in an ordinary season. In a good season, farmers who have used phosphates have obtained as much as 35 bushels of wheat per acre, and that even in what are usually supposed to be the drier parts of the State. The soil and climate are so different from what farmers coming from the Eastern States have been accustomed to, that the best and most remunerative methods of dealing with the land have only of late years been found out; and light soils that from the early days of settlement until quite recently were considered almost useless, are now yielding heavy crops by the judicious use of phosphates.

Another factor in keeping down the general average yield of grain is the use in many places of old-fashioned, out-of-date machinery, and the lack of up-to-date appliances for sowing the seed and distributing the manure.

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Most of the principal areas in Western Australia where the soil is suitable for wheat-growing are more or less heavily timbered. In the districts where until lately settlement was centred, the prevailing timber is York Gum and Jam Wood. The latter derives its name, "Raspberry Jam," from the odour it gives out, so much resembling that of the well-known preserve. In the Eastern forest country, now being taken up for the purpose of cereal production, the prevailing timbers are Salmon Gum, Gimlet Wood, and Morrell. The soil is of a rich chocolate colour, and varies from a sandy loam to a heavy clayey loam. The heavy stiff soils are generally found in York Gum country, and in a good season they yield equally heavy returns. In many places the York Gums are so dense that it is quite impossible to ride through them, and even difficult to walk; and when in this state, there is naturally but little grass to be seen. As soon, however, as the trees are ringbarked, the grass springs up in a most remarkable manner, and all kinds of stock fatten rapidly on it. The clearing of this heavy timber growth is not nearly so formidable as would be imagined. The heaviest of it can be ringbarked, and all small stuff under eight inches in diameter cut down, for 5s. per acre; if the ringbarked trees are then allowed to stand for 12 months, and a fire is put through them, almost everything will disappear, and the plough can be put into the land at once. In other parts of Australia the special trouble with ringing is that a great growth of saplings immediately follows; but if the York Gum, Jam, or Wattle country in this State is ringbarked, and then stocked with sheep, or better still goats, they will keep all the saplings down, and prevent further expense, besides also doing well on the newly ringbarked country. By adopting this method of clearing, and using the stump-jump plough, the land may be cleared for 10s. to 12s. per acre.

The high prices that have hitherto ruled for chaff and grain have unfortunately had a bad effect on the farming of this State, and much of it has up to the present been of a very slip-shod kind. The chief aim of most farmers appears to have been to get as large an area of land under crop as possible, and its proper cultivation has then been neglected; the same ground has often also been cropped year after year, without manure of any kind being used, or the land even fallowed, which course of treatment has naturally had a very detrimental effect in reducing the average yields.

In the coastal districts, extending from Fremantle towards the South, the rainfall is heavy and regular, and while not so well suited for wheat-growing, the land gives enormous returns of oats, barley, and rye. Crops of oats averaging from 50 to 70 bushels per acre are nothing uncommon, while barley and rye will yield from 25 to 45 bushels.

Much of the land in these districts is admirably adapted for dairying, as green feed can be grown all the year round, and there is an abundance of good water. Up to the present dairying has been but little engaged in, although those who have gone in for it have been most successful. The reason for this neglect is that grain, hay, chaff, and potatoes have been bringing such high prices

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that the farmers have not cared to undertake the heavy and constant work of dairying. Of all farm work, that of dairying seems to be the most disliked; and here, as in all the other States, there is ever the difficulty of getting milkers, as even where the farmer has a large family working, the young people will rather leave the farm and go elsewhere than remain at home to dairy. So long as the State continues to prosper as at present, there will in all probability not be much expansion in the dairy business; but there appears to be no doubt as to its possibilities as a profitable industry if pursued in future on modern lines. It is satisfactory to know that an effort is being made to furnish milk to the goldfields from local supplies, as hitherto the fields have been dependent entirely on imported products. In the South-West District a factory has been opened for the purpose of manufacturing concentrated milk, and although the supply of milk during its first season was not very great, the price that was paid for it was such as is likely to tempt others to send their milk in; and there is a fair prospect of this business ultimately developing into a large industry.

One of the best openings that exist in the agricultural line in this State is that of cheese-making. There is not a cheese factory in the country, nor is there any cheese privately made for sale. Good new cheese, which is in much greater demand than the matured article, would always command a fair price—at least 9d. or 10d. per pound; and at this price there is no other farm industry that would pay so well.

Much of this portion of our agricultural land is also particularly well suited for potato-growing, and two crops a year are obtained in many parts of it. The potatoes grown locally are of excellent quality, and in the Blackwood District a 10-ton crop per acre is not exceptional, even without the use of manure of any kind. The soil here will also grow maize, sorghum, and similar crops, as well as mangels, swedes, turnips, etc. Linseed is another crop that does well; and in the future there will in all probability be a large trade done through the production of flax fibre, some that has been grown here having been pronounced equal to that produced in any part of the world.

One feature of farm work that has been much neglected, and yet one which undoubtedly offers large returns, is that of keeping stock on the farms. It is almost exceptional to see a flock of sheep on a farm, and, as a rule, few cattle are kept, except where dairying is specially practised. In nearly all the wheat-growing districts the land produces good fattening grasses, and throughout the country thousands of acres of magnificent grass may be seen going to waste, by utilising which even on small farms, by keeping stock, an extra £100 per year could easily be made.

To the experienced wheat-grower, the all-important question in considering the prospects of a given district is the amount and distribution of the rainfall. It has been found that there are at

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present large areas of unutilised rich land within the 14-inch rainfall belt, the seasons appearing also to be fairly reliable. At the latitude of the Yilgarn Railway (31° 30′) this belt runs out to Kellerberrin, some 70 miles east of Northam, and it gradually widens in its easting as it runs towards the Great Australian Bight.

Such an event as a heavy drought through the South-Western portion of the State is practically unknown, but the average yearly rainfall is greater in proportion to its proximity to the Western coast; thus at the town of York the mean for 20 years has been found to be 17½ inches; at Pingelly, on the Great Southern Railway, the average appears to be about the same; at Wagin, on the same line, it is approximately 18 inches; on the coast, at Bunbury, the average is 36½ inches; in Perth 33 inches, and at Fremantle 30 inches. Throughout the Sussex and Blackwood districts the average is from 40 inches on the coast to 32 inches on the Eastern boundary of the Blackwood.

With almost unfailing regularity the season breaks in April or May, and then up to September or October there is always a good rainfall, it being some years, of course, much heavier than others. The one drawback to the Eastern District is, that at times the rain suddenly drops off in September. From September or October to the break of the season again there is no rainfall, save an occasional thunderstorm; whatever rain falls is, therefore, almost wholly confined to the growing season. The regularity of the seasons in the South-West portion of Western Australia is due to the fact that the chief supply of moisture for that part of the continent is drawn from the inexhaustible resources of the Indian Ocean, whose warm, moisture-laden, North-Westerly breezes are condensed and precipitated on coming into contact with the colder air lying on the surface of the land.

To the Eastward of Northam the wheat lands are peculiarly favoured, so far as a market is concerned, by their proximity to the Eastern Goldfields, which, being situated in a comparatively arid belt of country, their population is consequently dependent for its food supplies upon those who live in districts where there is an annual rainfall sufficient to mature a crop. Realising this fact, a large number of settlers have taken up land both to the North and South of the Northam-Kalgoorlie railway line, which is rapidly being brought under cultivation.

The forest lands—in this section—can be cleared one inch below the surface for less than 20s. per acre. The method in general use is as follows:—The timber, up to 10 or 12 inches in diameter at the ground, is chopped down level with the surface; whilst the larger trees are ringbarked, also level with the ground. This is done during June, July, and August. The ground is then left until the following February. As most of the rung trees are hollow, many of them blow down during the intervening months, while the leaves and limbs which drop furnish ample material to carry a fire. A suitable day in February is then chosen, and a running fire put

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through the whole of the land so treated. The clearing can then be completed for about 9s. per acre, the preliminary work having already cost a similar amount. The soil throughout this section is extremely loose and friable, and can be turned over at any time of the year; but the plough works better in summer than winter, as during the latter period the soil is very sticky, and clings to the mould-board.

At Tammin, 50 miles East of Northam, there are several settlers living on the class of land above described; they have now been there some years, and have amply demonstrated that wheat-growing can be made a success in that section even during very dry periods. They grow chiefly wheaten hay for the goldfields, their proximity to which gives them a decided advantage over the districts further West. At Mooranoppin, 20 miles more to the Eastward, wheat has for years successfully been cultivated on a light, sandy soil, of which there are thousands of acres available in the neighbourhood. By fertilising this class of soil with Abrolhos guano, fine yields of hay have been obtained, and it has been found that the crops on the light soil stand the heat better than do those on the adjacent forest land. Some crops average 30cwts. of wheaten hay to the acre.

With reference to the exportation of wheat, attention has been drawn * to the heavy consumption of wheat offal experienced in Western Australia, and it has been urged that the export should, if possible, take the form of flour, and not of grain, as by this means a fodder particularly valuable to the farmer would be retained in the country, increased avenues of employment for local labour would result, and a high-priced product only would be sent away from our shores.

General Crop Statistics.

Previous to 1896 the collection of the agricultural, livestock, and industrial statistics of each magisterial district was intrusted to the Resident Magistrates, from whose abstracts or reports the Registrar General compiled the returns. In the year mentioned above a new system was inaugurated, by which each holder of land of one acre in extent and upwards, the owner or person in charge of livestock, and the head of every industrial establishment were asked to supply the particulars required by the Registrar General. The Resident Magistrates acted as statistical agents, and the police as collectors. The new system was found to be a vast improvement on the old, and on the 23rd December, 1897, the Industrial Statistics Act was assented to, embodying the new system of collection, and making it compulsory for all persons concerned to furnish returns as required by the Registrar General.

The "total area under crop" in the State during the year ended February, 1904, was 283,752 acres, as against 229,992 acres in the previous year. If there be added to the acreage under crop

* See Perth *Morning Herald* of 12th October, 1904.

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2,952 acres under *permanent artificially-sown grasses*, 60,780 acres *cleared and prepared for immediate use*, 83,052 acres of land *in fallow*, and 41 acres of *planted forest trees*, the area of arable land at the close of the season 1903-4 will show a total of 430,577 acres.

The average area under crop per head of the mean population of the State during the ten years, 1894 to 1903, was as follows:—

Year.	Acres per Head.	Mean Population.
1894	1·08	75,055
1895	1·08	90,148
1896	0·91	122,696
1897	0·86	155,563
1898	1·02	168,999
1899	1·11	168,528
1900	1·14	176,905
1901	1·15	188,313
1902	1·12	205,755
1903	1·28	221,278

The foregoing figures might lead the reader to infer that there had been a serious falling-off in the acreage under crop up to the year 1897, when it was only 0·86 per head; but when it is taken into consideration that the mean population increased from 75,055 in 1894 to 155,563 in 1897, and the acreage under crop from 79,605 acres for the season 1892-3 to 133,183 acres in 1897-8, it can be seen that there was in reality a substantial increase between those years. In subsequent years this advance continued, affecting, however, not only the actual acreage, but equally the acreage per head; for although the mean population had, in 1903, increased to 221,278 persons, the area under crop, being 283,752 acres, had proportionately risen so much more rapidly that the average per head was no less than 1·28 acres.

The following table indicates the progress in land cultivation during the same 10 years:—

Return of Acreage of some of the Principal Crops in Western Australia for the Ten Years, 1894-1903.

Year.	Wheat.	Barley.	Oats.	Maize.	Potatoes.	Hay of all kinds.	Green Forage.	Vines.
	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.
1894	21,433	1,949	1,635	27⅛	703	49,896	281½	1,863
1895	23,241	1,932	1,880	23	668	63,804	430	2,217
1896	31,488¼	1,903	1,753	30¼	720¼	69,436½	815½	*2,294
1897	38,705½	1,693¾	1,677¾	243½	1,361½	80,938½	961¾	2,654½
1898	75,031¾	2,185¾	3,072½	110½	1,675½	79,223½	564¼	2,960½
1899	84,462½	3,885	3,939½	133½	2,837	78,892¾	708	3,244¾
1900	74,307¾	2,535¾	4,789½	91	1,794	104,254½	1,023½	3,325
1901	94,709½	2,668¾	9,751	512½	1,828¾	92,653¾	1,563½	3,629
1902	92,398	3,783	10,334	109	2,084	105,791	636	3,528
1903	137,946	3,609	14,568	163	1,823	109,002	672	3,324

* It must be pointed out that the acreages under "Vines" and "Fruit Trees" since 1896 have been compiled on the basis of the actual number of vines and fruit trees planted according to a standard supplied by the Department of Agriculture, which allows 600 vines or 100 fruit trees to the acre; a comparison between the figures of 1896 and those of previous years is therefore valueless.

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Potato Crop, Bunbury.

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During the years 1894 to 1897 the chief cereals suffered considerably owing to the attention devoted to the raising of hay and green forage to supply the enormous demand for fodder on the goldfields; nevertheless, during the whole decade, there has been a substantial increase in the acreage under wheat, the area under that crop for the season ending 28th February, 1895, being only 21,433 acres, whilst the acreage on the 28th February, 1903, had advanced to 92,398 acres, and in the following year to 137,946 acres. Oats also show a considerably extended acreage. An area of 1,823 acres, in the 1903-4 season, was devoted to the potato crop.

The following returns show the

Total Yield of the Principal Grain, Hay, and Root Crops in Western Australia for the Ten Years, 1894–1903.

Year.	Wheat.	Barley.	Oats.	Maize.	Potatoes.	Hay of all kinds.
	bushels.	bushels.	bushels.	bushels.	tons.	tons.
1894 ...	170,351	14,921	20,246	756	2,545	38,456
1895 ...	188,077	18,691	19,326	600	2,290	53,758
1896 ...	243,928	12,816	18,871	504	2,089	50,500
1897 ...	408,595	23,423	29,266	4,826	4,270	75,464
1898 ...	870,909	29,295	55,854	1,365	5,698	77,297
1899 ...	966,601	56,587	73,556	2,263	8,373	70,078
1900 ...	774,653	29,188	86,433	1,399	4,836	103,813
1901 ...	956,886	34,723	163,654	5,203	5,739	89,729
1902 ...	985,559	46,255	167,882	2,110	6,488	94,007
1903 ...	1,876,252	53,227	258,506	2,487	4,542	121,984

It will be noticed that in the year 1899 the quantity of potatoes grown was 8,373 tons, while in the following year it dropped to 4,836 tons. This is to be accounted for by the fact that, owing to the abnormally high prices that potatoes reached in 1898, the farmers throughout the State put in almost double the areas they had in before, and, unfortunately for themselves, almost all put in the early sorts that will not keep, with the consequence that hundreds of tons were rushed on the market, and were almost unsaleable, while in many cases the crop would not even have paid for the digging. The following season the farmers went to the opposite extreme, and prices again were very high. During 1901 and 1902 the potato acreage, as well as the yield, once more steadily increased, but the next year being a very wet season many of the farmers were afraid to plant as extensively as usual, and consequently there was a considerable falling-off in the potato crop.

In 1900 the wheat return shows a falling-off of nearly 200,000 bushels from the previous year's output, but the hay output showed an increase of over 30,000 tons. This was due to the enormous demand there was for chaff and the high prices obtaining for it in the early part of the season, consequently much of the crop that was intended for grain was cut for hay. The market then fell through an over supply, and the following season (1901) saw the

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hay crop once more down to its normal level, while the grain crop had proportionately risen.

In 1902 wheat experienced a slight decrease in the extent of the area planted, but the crop being a decidedly better one than the previous year, its yield exceeded the preceding one by 28,673 bushels. The year 1903 witnessed an unprecedented increase in the wheat acreage, the figures leaping from 92,398 acres to 137,946 acres, whilst the yield advanced in an even more phenomenal manner, namely, from 985,559 bushels to 1,876,252 bushels. During these two years the acreage of hay, as well as its crop, also progressed rapidly; the yield in 1893 being particularly high, with an average of 1·1 tons to the acre, as against 0·9 tons in the preceding year.

So far as the fluctuations in the production of maize are concerned, the demand for it is very uncertain, and the prices depend altogether on the season in the Eastern States. When the price is low here, many other crops pay much better, and naturally there is but little sown the following season.

The Average Yields per acre of the principal Grain, Hay, and Root Crops in Western Australia for the ten years, 1894–1903, were as follows:—

Year.	Wheat.	Barley.	Oats.	Maize.	Potatoes.	Hay of all kinds.
1894	7·9	7·7	12·4	27·5	3·6	0·8
1895	8·1	9·7	10·3	26·1	3·4	0·8
1896	7·7	6·7	10·8	16·7	2·9	0·7
1897	10·	13·8	17·4	19·8	3·1	0·9
1898	11·6	13·4	18·2	12·4	3·4	1·0
1899	11·4	14·6	18·7	17·0	3·0	0·9
1900	10·4	11·5	18·0	15·4	2·7	1·0
1901	10·1	13·0	16·8	10·2	3·1	1·0
1902	10·7	12·2	16·2	19·4	3·1	0·9
1903	13·6	4·7	17·7	15·3	2·5	1·1

It will be seen from the foregoing tables that the production of wheat, from a minimum of 170,351 bushels in 1894, attained to 1,876,252 bushels in 1903—a more than elevenfold increase; whilst the average yield per acre, which fell as low as 7·7 bushels in 1896, reached its maximum (13·6 bushels) in the same record year, 1903.

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The following table shows the quantity available, the requirements, production, and deficiency of wheat per head of mean population for the years 1896-1903 inclusive:—

Year.	Mean Population.	Wheat per head of mean population.			
			Requirements, Production, and Deficiency.		
		Quantity available for Food.	Gross requirements of Wheat for Seed and Food.	Home production of Wheat.	Deficiency.
	No.	Bushels per head.	Bushels per head.	Bushels per head.	Bushels per head.
1896	122,696	8·1	9·1	1·5	7·6
1897	155,563	7·2	8·1	1·6	6·5
1898	168,999	7·5	8·5	2·4	6·1
1899	168,528	7·8	8·9	5·2	3·7
1900	177,073	7·6	8·7	5·5	3·2
1901	188,603	7·7	8·8	4·1	4·7
1902	207,142	7·5	8·5	4·6	3·9
1903	223,641	7·5	8·6	4·4	4·2

The deficiency of wheat showed a decrease from 7·6 bushels per head of mean population in 1896 to only 3·2 bushels in 1900, which was followed by somewhat fluctuating averages in the following years, that for 1903 being 4·2 bushels. The home production of wheat, and the deficiency to be made up by importation from the Eastern States, serve to show on the one hand how largely local supplies are increasing consequent on the increased attention now being paid to the growth of cereals, and, on the other hand, the effect which this fact has upon the importation.

The estimated area under wheat for 1904-5 season is 157,052 acres, and the estimated yield 1,691,945 bushels, or an average per acre of 12·04 bushels.

Principal Crops of the Season ended 29th February, 1904.

Wheat.

The principal wheat-growing districts are Northam, York, Katanning, Victoria, Swan, and Williams. The following table shows the area under wheat, the yield, and the average per acre,

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during the season ended 29th February, 1904, for each of the more important Magisterial and Police Districts:—

Magisterial Districts.	Police Districts.	Area under Wheat.	Production.	Average per acre.
		acres.	bushels.	bushels.
Northampton ...	... ...	1,347	15,268	11·3
Victoria	Greenough ...	5,718	56,014	9·8
	Dongara ...	3,861	45,171	11·7
	Geraldton ...	1,281	12,880	10·1
	Mingenew ...	525	8,020	15·3
Swan	Gingin	1,503	14,319	9·5
	Moora	2,992	39,990	13·4
	Other Districts...	397	3,667	9·2
Northam	Northam ...	24,897	398,545	16·0
	Newcastle ...	15,906	222,107	14·0
York	York	18,057	321,733	17·8
	Beverley ...	19,810	345,608	17·4
Williams	Williams ...	2,027	20,463	10·1
	Narrogin ...	7,693	95,526	12·4
Katanning	Katanning ...	14,514	132,388	9·1
	Wagin	9,315	81,018	8·7
	Broome Hill ...	3,517	26,780	7·6
	Kojonup ...	2,092	13,785	6·6
Other Districts ...	... ...	2,494	22,970	9·0
Total	... ...	137,946	1,876,252	13·6

The Northampton District comprises part of the Geraldton Police District, in which were contained 187 of the total number of 1,347 acres of wheat planted in the entire magisterial district of Northampton. The police districts in the Swan Magisterial District not separately mentioned, are Midland Junction with 232, Mundaring with 116, Guildford with 41, and Swan with eight acres. The magisterial districts not separately given are Perth with 42 acres at Kelmscott, Fremantle with about seven acres, Murray with 179 acres, mostly at Pinjarra; Wellington with 647 acres, mostly at Bunbury; Collie with 22 acres, Blackwood with 524 acres, mostly at Bridgetown; Sussex with 95 acres, mostly at Busselton; Plantagenet with 946 acres, mostly at Mount Barker; East Coolgardie with 10 acres, Coolgardie with two acres, and Phillips River with 20 acres.

Oats.

The largest acreage of oats, during the 1903-4 season, was planted in the Northam Magisterial District, namely 3,995 acres out of the total area of 14,568 acres under oats throughout the State. The Katanning Magisterial District came next with 3,732 acres.

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Wheat Harvest at York.

Oat Crop at Pingelly.

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Particulars of the principal oat-producing districts during that season are contained in the following table:—

Magisterial Districts.	Police Districts.	Area under Oats.	Production.	Average per acre.
		acres.	bushels.	bushels.
Northampton ...	... ...	217	3,152	14·6
Victoria ...	Greenough ...	400	5,176	12·9
	Dongara ...	269	4,407	16·4
	Geraldton ...	253	4,161	16·4
	Mingenew ...	60	2,400	40·0
Swan ...	Gingin	510	6,730	13·2
	Moora	516	11,985	23·2
	Other Districts...	112	1,508	13·5
Northam ...	Northam ...	2,010	54,129	26·9
	Newcastle ...	1,985	42,640	21·5
York ...	York ...	857	17,905	20·9
	Beverley ...	967	21,030	21·7
Wellington...	Bunbury ...	471	8,443	18·9
	Other Districts ...	184	2,621	14·2
Williams ...	Williams ...	450	5,078	11·3
	Narrogin ...	819	11,311	13·8
Katanning ...	Katanning ...	1,622	18,533	11·4
	Wagin ...	1,172	14,054	12·0
	Broomehill ...	526	6,203	11·8
	Kojonup... ...	412	3,934	9·5
Blackwood ...	Bridgetown ...	345	5,735	16·6
	Other Districts ...	55	1,265	23·0
Other Districts ...	... .	356	6,103	17·1
Total ...	... .	14,568	258,503	17·7

The portion of Geraldton lying in the Northampton Magisterial District had 47 acres under oats, out of the 217 acres of the whole Magisterial District. Midland Junction, in the Swan District, had 100, and Guildford 12 acres planted with this crop. The "Other districts" in the Wellington Magisterial District were Yarloop, with 167 acres; part of Donnybrook, with 16 acres; and part of Collie, with about an acre. In the Blackwood the "Other districts" were the principal portion of Donnybrook, with 53 acres, and part of Greenbushes, with 2 acres. The magisterial districts not separately enumerated are: Perth, with 44 acres, mostly at Kelmscott; Murray, with 83 acres, mostly at Pinjarra; Collie, with 20 acres; Sussex, with 24 acres, mostly at Busselton; Plantagenet, with 184 acres, mostly at Mount Barker; and Esperance, with one acre.

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Barley.

Barley is most extensively grown in the Victoria District. The areas under this crop, and their yield, in the principal Districts, during 1903-4, were as follows:—

Magisterial Districts.	Police Districts.	Area under Barley.	Production.	Average per acre.
		acres.	bushels.	bushels.
Victoria	Greenough ...	853	10,522	12·3
	Dongara ...	411	4,541	11·0
	Geraldton ...	53	588	11·0
	Mingenew ...	77	2,722	35·5
Northam	Northam ...	503	9,541	18·9
	Newcastle ...	494	7,918	16·0
York	York	238	3,930	16·5
	Beverley... ...	248	4,227	17·0
Other Districts ...	...	732	9,238	12·6
Total ...	...	3,609	53,227	14·7

The magisterial districts not shown separately in the above return are: Northampton, with 71 acres, mostly around the town-site of the same name; Swan, with 209 acres, mostly at Moora and Gingin; Perth, with half an acre; Fremantle, with 2½ acres; Murray, with 32 acres; Wellington, with 52 acres, mostly at Bunbury; Williams, with 98 acres; Katanning, with 229 acres, mostly in the Katanning and Wagin Police Districts; Blackwood, with 22 acres; Sussex, with about 3 acres; and Plantagenet, with 13 acres at Mount Barker.

Hay.

In the areas dealt with under the headings "wheat" and "oats," it is evident that no acreages have been included which, though originally planted with those crops, were ultimately cut for hay. With regard to the acreages of hay during the 1903-4 season in the various Magisterial Districts, it is once more the Northam District that heads the list. In the following table relating to the

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hay production of that year, the areas under wheaten, oaten, and other hay have been distinguished :—

Magisterial District.	Police District.	Area under Hay.				Production.	Average per acre.
		Wheaten.	Oaten.	Other.	Total.		
		acres.	acres.	acres.	acres.	bushels.	bshls.
Northamptom ...	...	1,685	239	17	1,941	1,768	0·9
Victoria ...	Greenough ...	4,754	791	296	5,841	5,434	0·9
	Dongara	2,256	147	21	2,424	2,714	1·1
	Geraldton ...	1,545	552	114	2,211	2,029	0·9
	Other Districts ...	369	68	...	437	459	1·1
Swan ...	Gingin	926	2,201	53	3,180	2,971	0·9
	Moora	2,183	538	127	2,848	3,376	1·2
	Midland Junction	670	1,097	7	1,774	1,484	0·8
	Guildford ...	148	960	7	1,115	805	0·7
	Swan	66	658	...	724	581	0·8
	Mundaring ...	124	232	2	358	315	0·9
Northam	Northam ...	20,611	1,859	175	22,645	32,619	1·4
	Newcastle ..	7,479	1,132	10	8,621	9,672	1·1
York ...	York	8,768	508	14	9,290	12,828	1·4
	Beverley	6,607	690	64	7,361	11,151	1·5
Perth	...	530	645	50	1,225	1,288	1·1
Fremantle ...	...	216	270	51	537	523	1·0
Murray	Pinjarra	550	1,306	136	1,992	1,597	0·8
	Waroona... ...	131	1,076	12	1,219	911	0·7
	Jarrahdale ...	247	475	...	722	762	1·1
Wellington	Bunbury ...	730	4,023	102	4,855	4,337	0·9
	Yarloop	136	1,220	1	1,357	1,206	0·9
	Other Districts ...	40	309	...	349	346	1·0
Williams	Williams... ...	1,072	172	7	1,251	965	0·8
	Narrogin... ...	2,133	447	155	2,735	3,384	1·2
Katanning	Katanning ...	4,918	2,103	7	7,028	5,731	0·8
	Wagin	3,831	1,222	84	5,137	4,321	0·8
	Broomehill ...	1,925	632	...	2,557	2,097	0·8
	Kojonup	407	477	80	964	683	0·7
Blackwood	Bridgetown ...	396	825	1	1,222	1,259	1·0
	Other Districts ...	104	927	1	1,032	1,022	1·0
Sussex ...	Busselton ...	262	606	54	922	814	0·9
	Other Districts ...	12	127	...	139	129	0·9
Plantagenet ...	...	896	355	20	1,271	1,325	1·0
Dundas ...	...	724	...	...	724	295	0·4
Other Districts	...	759	211	24	994	733	0·7
Total ...	...	78,210	29,100	1,692	109,002	121,934	1·1

The Geraldton portion of the Northampton District was only responsible for 165 of the 1,941 acres under hay. In the Victoria Magisterial District, the Police Districts not separately mentioned are Mingenew, with 395 acres, and Mullewa, with 42 acres. The hay area in the Perth District was mostly to be found at Kelmscott. The unenumerated Police Districts in the Wellington Magisterial District are portion of Collie, with 55 acres, and portion of Donnybrook with 294 acres. The "Other districts" at Blackwood are part of Donnybrook, with 492 acres, and part of

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Greenbushes, with 540 acres; those in the Sussex Magisterial District are Hamelin, with 118 acres, and the remaining part of Greenbushes, with 21 acres. Of the 1,271 acres in the Plantagenet District, only 243 were found at Albany, whilst Mt. Barker was responsible for the whole of the balance. The Magisterial Districts not enumerated are Collie, with 246 acres; Gascoyne, with 19 acres; East Murchison, with 2½ acres; Mount Margaret, with half an acre; North Coolgardie, with 80 acres; North-East Coolgardie, with 35 acres; East Coolgardie, with 16 acres; Coolgardie, with 15 acres; Esperance, with 272 acres, and Phillips River, with 308 acres.

Potatoes.

A very considerable proportion of the potatoes grown in Western Australia are contributed by the Wellington District, Bunbury alone having had, in the 1903-4 season, an area of 494 acres under this crop, whilst Yarloop had 146 acres, and the remaining portions of the district 27 acres. The average production for Bunbury was 2·6 tons to the acre, and that for the whole of the Wellington District 2·5 tons. Busselton had 159 acres planted with potatoes, and its average production was as much as 3·9 tons. The area at Gingin was 107 acres, and that for the whole of the Swan District 194 acres. The Fremantle Police District contained 106 of the 136 acres recorded for the whole of the Fremantle Magisterial District. At Wanneroo were planted 51, and at Victoria Park 41, of the total area of 163 acres under potatoes in the Perth Magisterial District. In the Murray District 119 acres were planted, in the Blackwood 68, at Albany 97, at Mount Barker 85, and in various other districts smaller areas were laid under tribute for this important crop, the whole acreage of the State under potatoes during the season being, however, only 1,823, with a yield of 4,532 tons, or an average yield of 2·5 tons to the acre.

Other Crops.

An area of only 163 acres was planted with maize during 1903-4, Wagin being responsible for 55 of these, with an average yield of 14·5 bushels per acre. Rye was grown over an area of 445 acres, the average yield being 8·9 bushels; the areas under this crop at Busselton and Gingin were respectively 160 and 74 acres. The area under peas and beans was 593 acres, Bunbury accounting for 166 of these and Kelmscott for 75; the average yield for the State was 12·4 bushels to the acre. Green food was grown over an extent of 672 acres, 181 of which were in the Wellington district. A total of 93 acres of onions, 65 acres of mangel wurzel, and 79 acres of other root crops were cultivated, practically all, of course, in the South Western division of the State. Areas of 852 acres, 2,463 acres, and 117 acres, were devoted respectively to kitchen gardens, market gardens, and other crops, the bulk of these being located about Perth and Fremantle.

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Vineyard in the Darling Range.

Potato Crop, Bunbury.

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DAIRYING.

Western Australia is at present, and has been for several years, largely dependent on imports from other countries for her dairy produce, a natural consequence of the incessant and rapid increase of her population, incident upon the development of the Eastern Goldfields group. It is evident, from the figures in the following table, showing the quantities of milk, butter, cheese, bacon, ham, and salt pork produced in the State during the years 1896 to 1903, that the dairying industry has not kept pace with the progress of Western Australia in almost every other direction. The reason is not that the State is incapable of producing these articles, but that for several years the demand has been so great for hay and grain that the agriculturists, to the exclusion of the other important branches of agricultural industry, have devoted all their energies to the production of those staples.

Year.	Milk obtained.	Butter made.	Cheese made.	Bacon cured.	Ham cured.	Pork salted and pickled.
	gallons.	lbs.	lbs.	lbs.	lbs.	lbs.
1896 ...		243,508	1,390	25,[illegible]		*
1897 ...		27[illegible]	612	178,31[illegible]	58,786	886,671
1898 ...	*	264,[illegible]	704	115,[illegible]	38,929	[illegible]
1899 ...		294,[illegible]	332	154,543	41,553	[illegible]
1900 ...		29[illegible]	346	243,[illegible]	55,292	[illegible]
1901 ...		336,44[illegible]	3,578	256,[illegible]	77,336	1,412,149
1902 ...	2,415,975	321,462	1,592	189,[illegible]	57,320	1,066,931
1903 ...	3,797,[illegible]	351,[illegible]	8,039	127,[illegible]	51,020	[illegible]

* Information not available.

The quantities of milk obtained during the years 1902 and 1903, certainly show a substantial increase; but the increase of butter made from 243,508lbs. in 1896 to 351,885lbs. in 1903, and of pork salted and pickled, from 886,671lbs. in 1897 to 952,860lbs. in 1903, with a temporary more considerable increase to 1,412,149lbs. in 1901, is by no means so satisfactory, whilst bacon cured receded 178,316lbs. in 1897 to 127,537lbs. in 1903, though also with a temporary increase to 256,057lbs. in 1901, and ham cured fell from 58,786lbs. in 1897 to 51,020lbs. in 1903, having likewise attained its highest figure, 77,336lbs., in the year 1901. The only really satisfactory figures are those relating to cheese-making, the increase, though entirely traceable to the later years, being from 1,390lbs. in 1896 to 8,039lbs. in 1903. The import values in 1903 of preserved milk and cream, £99,644; butter, £285,587; cheese, £34,123; and bacon and ham, £138,386, bear eloquent testimony to the deficiency of our production in the dairying industry. It is gratifying, however, to reflect that the Government have realised the importance of giving an impetus to dairying in Western Australia. The efforts made in this direction are referred to elsewhere.

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The natural locality for dairy farming appears to be the South-Western portion of the State, and the bulk of the quantities shown under the various headings of the table were produced in the South-Western division. Of the 3,797,389 gallons of milk obtained during 1903, no less than 833,382 gallons were obtained in the Perth district and 532,081 in the Wellington district. Butter was made in the Wellington district to the extent of 116,317lbs., and of cheese in the same locality 6,660lbs. were made. Bacon and ham-curing, as well as the production of salted and pickled pork, were most extensively carried on in the Northam and York districts.

A factory has recently been fitted out in Perth for the manufacture of butter, the preparation of table cream, and the pasteurising of fresh milk, and the distribution of the same in Perth.

Vines and Fruit Trees.

It is now generally conceded that the area of country in Western Australia capable of producing the fruits and vegetables of the temperate and semi-tropic zones has, up to a recent period, been very much under-estimated, and while there are large tracts of sandy waterless wastes in the interior, yet, even in that section, fertile oases are occasionally found where the vine, the fruit tree, and most sorts of vegetables will grow and yield abundantly.

The fruit, wine, and vegetable-producing districts of the State extend from the Murchison River, in the North, to King George Sound, in the South, with an average breadth of about 50 miles, extending from the coast inland at the former locality to 150 miles in the South-Western District.

The variety of soils found and the climatic conditions experienced in this large area render it possible to grow profitably in some portion or other of it all the different varieties of table, raisin, and wine grapes, together with the orange, lemon, lime, mandarin, apple, peach, apricot, plum, pear, and all the other kinds of citrus and deciduous fruits and vegetables of Central and Southern Europe.

There is, however, this to be said: while all the products enumerated can be grown within the limits mentioned, the soil generally is "patchy," and not of an uniform character. The tracts capable of producing fruit, etc., are limited in extent to the following:—Alluvial valleys along the rivers, the swamp lands, most of which can be easily drained, and, when thus reclaimed, may be converted into orchards or gardens; the valleys among the hills, where the water is near the surface; the slopes of the ranges, where the ironstone gravel is considered, when mixed with a fair proportion of loam, the soil best suited to the production of high-class wines; the gullies, river-beds, and other places, where there are rich deposits of loam, in which vines and fruit trees thrive luxuriantly; the gullies along the brooks and around the springs,

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Orange and Apple Orchard (S.W.).

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as well as on the low alluvial soil, where the flooded gum, often associated with grass trees or "blackboys," marks out fertile strips of land; the chocolate soil—locally known as the "jam" or "wattle" country—which is considered, on the whole, to be one of the best balanced in the elements of plant food in the State; and finally, occasional rich patches of volcanic origin and of great fertility. In spots all over the country salt patches are to be found, and these generally appear after the clearing of the land. Their occurrence is more noticeable in what would have been otherwise the most fertile parts of the field, in hollows, or at the base of sloping ground where, owing to the leaching process, these salts accumulate.

Wherever springs of fresh water are found, they transform the naturally dry country, and under the sunny skies, trees and vines bear enormous crops.

It is difficult to estimate the proportion of percentage of barren soils throughout the section under review. It must, however, be admitted that there are large areas where the soil varies from a coloured sandy loam to a pure white sand. This description of country supports shrubs of different sorts, banksias, and, in places where the sand is not too deep, either white or red gums, interspersed with blackboys, and, near the coast, the willow, myrtle, or peppermint tree. It might be considered hopeless to expect the large areas of sand that are found in many parts of the State to give any adequate return for the labour attached to working them; yet good returns are obtained. With the exception of the pure white sand which occurs along the coast, all the other sands are fairly fertile, and many kinds of fruit trees planted in them thrive and bear remarkably heavy crops. Those fruits which appear to be most successful on the sandy soils are peaches, figs, certain varieties of apples and pears, mulberries, and vines; the latter, in many instances, producing excellent crops. All that is required with almost any of our sandy soils to make them prolific is the addition of some phosphatic manure. It has been found that fruit trees will frequently live and bear fairly well when planted in the sand in the drier districts of the State, when they will not live in the heavier soils. For instance, in the Geraldton District, along the Chapman River, all kinds of citrus trees do exceedingly well. In one orchard of oranges and mandarins the trees started to bear heavily when three years old; when four years old the mandarin trees yielded on the average about 36 dozen mandarins; as a consequence of which, within the past year or two, a number of orange groves have been started in the above district.

In the well sheltered little valleys, from 10 to 30 miles East of Geraldton, there are several fine orchards and gardens. At New Norcia the Benedictine monks have splendid orchards, vineyards, and vegetable gardens, where for many years they have grown sufficient fruit and vegetables, besides making enough wine, to supply the wants of their community.

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Large areas of salmon gum and gimlet wood land, which is excellent for fruit-growing, extend, in the neighbourhood of Carnamah, for some distance along the Midland Railway line.

At Bindoon there are several fine orchards and gardens. Gingin is noted for its oranges, and there are there to be found a number of trees over 50 years of age still bearing large crops of fruit; along the brook are many extensive orange groves, and thousands of citrus and deciduous fruit trees have been planted in the district within the last five years. On the banks of the river Swan also there are many orchards and vineyards. At Gooseberry Hill and throughout the Darling Range, in its sheltered valleys and on its sunny slopes, there are now to be seen acres of vines and fruit trees.

Along the Avon Valley, in the vicinity of Beverley, York, Northam, and Newcastle, there are thousands of acres which might easily be converted, with the aid of irrigation, into profitable orchards and vineyards. At Katanning, on the Great Southern Railway, apples have been picked weighing over a pound each. At Mount Barker and near Albany there are a number of orchards, vineyards, and garden areas.

Starting from Perth, and going South towards Bunbury along the Western slopes of tne Darling Range, and thence through the Blackwood and Sussex districts, there are some of the finest fruit and garden lands in the State. All the fruits of the temperate zone grow to perfection, especially apples, which for colour, size, and flavour are not excelled in any part of Australia. Pears do equally well, whilst small fruits and berries of all sorts thrive and yield good crops. Citrus trees find the climate rather too cold to thrive profitably South of Bunbury. There are also many groves of orange and lemon trees at the Canning, in the Darling Range, at Armadale, Wongong, on the Harvey River, and at various other points along the South-Western Railway line.

Wines of the claret and light Burgundy types can be produced even South of Bunbury; but the climate there is hardly warm and dry enough for the successful cultivation of the Muscat family of grapes for raisins; indeed, in the latitude of Albany, grapes do not ripen well, and their extensive cultivation in that section is not recommended.

Western Australia, with the advantages it possesses in the way of soil, climate, and rainfall, and from the fact that her ports are the first and last points of call on the Australian continent for vessels on their way to and from Europe, should, in the near future, be able to produce fruit, not only sufficient to supply the needs of the State, but also a surplus for export to the United Kingdom or elsewhere.

The figures relating to the areas under various kinds of vines and fruit trees in Western Australia during the years 1896-1903,

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Orchard and Vineyard, Katanning.

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given in the following return, bear testimony to the progress made in this important branch of agriculture:—

Fruit Crops.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.
	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.
Grape Vines, Productive, for Wine-making	938	1,253	1,290	1,400	1,469	1,710	1,660	1,530
Grape Vines, Productive, for Table use	545	533	589	721	888	1,057	1,184	1,177
Grape Vines, Not yet bearing	811	869	1,082	1,121	968	862	644	617
Oranges	270	291	424	526	629	659	761	875
Lemons	105	131	165	225	229	217	222	213
Apples	797	1,038	1,310	1,686	2,127	2,678	3,166	3,670
Pears	147	171	231	297	373	434	512	573
Apricots	176	186	228	244	257	272	282	306
Peaches	281	334	388	450	496	568	613	730
Plums	156	178	215	229	254	272	316	375
Figs	181	231	265	301	341	378	367	385
Other Fruit Trees	160	319	381	412	452	496	542	575
Bananas and Plantains	*	*	*	51	84	74	67	104
Other, Small Fruit	120	43	70	44	54	28	24	132
Total Area	4,687	5,577	6,638	7,710	8,621	9,705	10,400	11,362

* Included under the heading "Other, Small Fruit."

That grapes are most extensively grown in the Swan Magisterial District is proved by the fact that of the area under vines during 1903 this district contributed 665 acres of productive vines for wine-making, 416 acres of productive vines for table use, and 219 acres of young vines not yet bearing. The Northam Magisterial District had 369 acres under the first-mentioned category of vines, 174 acres under the second, and 48 acres under the third, the Newcastle Police District being responsible for the greater portion of these areas. Oranges were most extensively grown in the Swan, Perth, Wellington, Murray, and Northam Districts; lemons in the Perth, Murray, Swan, Northam, and Wellington Districts; apples in the Blackwood, Plantagenet, Wellington, Swan, Katanning, Murray, Perth and other districts in the South-Western Division; pears in the Swan, Blackwood, Plantagenet, Wellington, Perth, and Katanning Districts; apricots in the Wellington, Swan, Katanning, and Perth Districts; peaches in the Wellington, Swan, and Blackwood Districts; plums in the Swan, Plantagenet, Wellington, Katanning, and Blackwood Districts; figs in the Swan, Wellington, Murray, and Perth Districts; bananas and plantains in the Perth District; other fruit trees, including quinces, nectarines, almonds, etc., in the Swan, Katanning, Wellington, and Perth Districts; and small fruit, including strawberries, gooseberries, etc., in the Swan District.

The acreages under fruit trees and vines are compiled on the basis of the actual number of trees and vines planted, according to a standard supplied by the Department of Agriculture, which allows 600 vines, or 100 fruit trees to the acre.

The fact that certain districts have, up to the present, been the main producers of some of the fruit above enumerated, denotes by no means that such fruit might not be equally well grown in other parts of the State, but is in many instances due to the facilities offered by closer settlement in the localities referred to.

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In spite of the increasing effort of vignerons and fruit-growers to cope with the local demand for the produce of vineyard and orchard, the import figures continue to bear witness to the insufficiency of the local supply.

The number of cases of fresh fruit passed by the Inspectors of the Agricultural Department at Fremantle during the years 1902-1904 is as follows:—

Return of Fruit inspected at Fremantle.

—	1902.	1903.	1904.
Number of cases inspected	88,109	124,673½	128,801
Number of cases passed	78,231	110,346¾	117,169
Number of cases destroyed	9,878	14,326¾	11,632
Cases of Fruit passed.			
Apricots	10	615½	941
Bananas	17,355	15,481½	19,407
Cherries	2,672	6,270	7,463
Gooseberries	1,275	1,775	1,735
Grapes	...	...	...
Lemons	7,304	10,088	10,470
Oranges	9,583	21,460	20,339
Peaches	22	15	659
Plums	5,929	8,982½	15,302
Apples	30,744	39,189½	36,657
Pines	231	369	283
Pears	1,963	4,567	2,539½
Passion Fruit	...	1,070¼	1,064
All other	1,243	463½	288½

For Albany the figures are given in the following table:—

Return of Fruit inspected at Albany.

—	1902.	1903.	1904.
Number of cases inspected	3,074	6,409	4,289
Number of cases passed	2,915	6,074½	4,228
Number of cases destroyed	159	334½	61
Cases of Fruit passed.			
Apricots	87	161	359
Bananas	254	354	297
Cherries	233	434	497
Gooseberries	56	180	146
Grapes	...	36	...
Lemons	203	755	267
Oranges	413	1,268¾	847
Peaches	26	70	33
Plums	450	838	942
Apples	990	1,561¾	551
Pines	...	...	17
Pears	114	361	60
Passion Fruit	7	7	59
All other	82	70	153

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It will be seen that there was a very considerable increase—from 3,074 cases inspected to 6,074½ cases—in 1903 as compared with 1902; whilst in 1904 the number decreased to 4,289 cases.

Similar particulars with regard to imported fruit trees and plants inspected at Fremantle are as follows:—

Return of Fruit Trees and Plants inspected at Fremantle.

—	1902.	1903.	1904.
Number of trees inspected	127,236	164,764	210,215
Number of trees passed	126,819	164,525	209,487
Number of trees destroyed	417	239	728
No. of Fruit Trees and Plants passed.			
Ornamental and Pot Plants	32,259	46,349	17,202
Almonds	734	787	801
Apples	36,341	29,310	54,145
Apricots	2,121	3,482	11,921
Cherries	274	460	1,672
Figs	83	515	1,553
Lemons	934	1,477	2,724
Nectarines	...	...	3,022
Mulberries	313	2,586	680
Oranges	22,210	33,460	60,614
Peaches	13,278	14,566	21,561
Pears	4,637	5,532	12,342
Plums	4,545	6,843	10,293
Small Fruits	7,124	14,058	5,999
All other	1,966	3,193	4,117
Loquats	...	917	841

For Albany the figures under this head were fairly stationary, as will be seen from the following:—

Return of Fruit Trees and Plants inspected at Albany.

—	1902.	1903.	1904.
Number of trees inspected	35,682	39,542	36,126
Number of trees passed	35,604	39,542	36,126
Number of trees destroyed	78	...	...
Number of Fruit Trees and Plants passed.			
Ornamental and Pot Plants	1,379	1,231	525
Almonds	182	143	189
Apples	19,419	21,582	16,174
Apricots	1,258	906	939
Cherries	1,058	579	723

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Number of Fruit Trees and Plants passed—continued.

—	1902.	1903.	1904.
Figs	309	194	251
Lemons	114	285	110
Limes	7	...	17
Mulberries	101	121	87
Oranges	308	529	475
Peaches	3,118	2,075	3,304
Pears	2,366	2,687	1,754
Plums	2,131	2,443	2,651
Small Fruits	2,247	6,270	8,245
Vine Cuttings	...	...	3
All other	1,607	497	686

Species of Fruit grown in the State.

A great variety of fruits are grown in the State, and in some districts in considerable quantities. The following is a list of some of the principal species of fruit grown in Western Australia, and the seasons when they are ripe :—

Common Name.	Scientific Name.	When ripe.
Almond	Amygdalus communis ...	December to April.
Apple	Pyrus malus	January to July.
Apricot	Prunus Armeniaca ...	December to February.
Banana	Musa sapientum	January to July.
Blackberry	Rubus sp.	December.
Bread Fruit ...	Artocarpis incisa	
Cape Gooseberry ...	Physalis Peruviana ...	All the year.
Capsicum	Capsicum	January to May.
Carob Bean ...	Ceratonia siliqua	May to June.
Cherry	Cerasus sp.	November to January.
Chestnut	Castanea vesca	April to May.
Citron	Citrus medica	
Cocoanut	Cocos nucifera	
Currant	Ribes rubrum	December to January.
Custard Apple ...	Anona	
Date	Phœnix dactylifera ...	February to May.
Egg Fruit	Solanum melongena ...	January to April.
Fig	Ficus carica	November to May.
Gooseberry	Ribes grossularia	December and January.
Grapes	Vitis vinifera	December to April.
Grenadilla	Passiflora quadrangularis	January to May.
Guava	Psidium sp.	January to June.
Hazel-nut or Filbert	Corylus avellana	March to April.

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Species of Fruit grown in the State—continued.

Common Name.	Scientific Name.	When ripe.
Japanese Plum ...	Prunus triflora	December to April.
Kumquat	Citrus Japonica	May.
Lemon	Citrus limonum	April to November.
Limes	Citrus Medica var. Limetta	
Loquat	Mespilus Japonica ...	September to November.
Mandarin	Citrus nobilis	May to July.
Medlar	Mespilus Germanica ...	January to April.
Melon (pie) ...	Cucumus citrullus ...	April to July.
Melon (rock) ...	„ melo	December to April.
Melon (water) ...	„ sp.	Do. do.
Mulberry	Morus Nigra	December and January.
Olives	Olea Europæa	June and July.
Orange	Citrus aurantium	May to October.
Passion Fruit ...	Passiflora edulis	December to July.
Papaw	Carica papaya	
Peach and Nectarine	Amygdalum Persica ...	December to May.
Peanut	Arachis Hypogea	April to June.
Pear...	Pyrus communis	December to July.
Persimmon	Diospyros Kaki	February to April.
Pineapple	Ananas sativa	March to June.
Plantain	Musa paradisiaca	January to July.
Plum	Prunus domestica	November to April.
Pomegranate ...	Punica granatum	February and March.
Pomelo	Citrus decumana	May to July.
Pumpkin	Cucurbita sp.	January to June.
Quince	Pyrus, Cydonia	February to May.
Raspberry	Ribes idæus	December.
Strawberry ...	Fragaria sp.	October to March.
Tomato	Lycopersicum esculentum	December to June.
Walnut	Juglans regia	April.

Under the provisions of "The Insect Pests Amendment Act, 1898," Inspectors of the Department of Agriculture appointed under the Act have power to enter upon any land, orchard, etc., and inspect the trees, plants, or other vegetation growing thereon.

Should the Inspector find any insect or fungus disease, he has power to serve a written notice upon the occupier directing him to take measures to eradicate such disease. If such occupier ignores this notice, the Inspector may carry out the work at the occupier's expense. At the same time the latter renders himself liable to a fine not exceeding £100 for not complying with the notice.

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Appeals.—Any person feeling aggrieved by any order or conviction under this Act shall be entitled to appeal therefrom to the Court of General or Quarter Sessions, or to the Supreme Court in the manner and form and in the terms respectively which are prescribed by the law in force for the time being with reference to appeals.

Orders regulating the Importation and Disinfection of Vine Cuttings, Buds, and Grapes.

1. The importation of rooted grape vines or grape vines that have had their roots removed is absolutely prohibited.

2. All vine cuttings imported shall be absolutely surrendered to the Chief Inspector or Local Inspector at the port of debarkation for the purpose of being quarantined, as hereinafter provided.

3. All vine cuttings imported shall be quarantined by the Department of Agriculture for a period of not less than 12 months, nor longer than two years, upon such grounds as from time to time shall be set apart by the said Department, by advertising in the *Government Gazette*, as quarantine stations. The consignee, agent, or other person engaged or concerned in the importation of any such vine cuttings as aforesaid shall, at the time of delivering the same to the Department of Agriculture for the purpose of being quarantined, pay to the Director of Agriculture a sum of 2s. 6d. for every 100 cuttings so delivered, and at the expiration of the period of quarantine shall, upon taking delivery of his rooted vines, pay the further sum of 2s. 6d. for every 100 rooted vines so delivered to him.

4. Any vine cuttings imported which are at the time of landing, in the opinion of the Chief Inspector or Local Inspector, affected with insects, fungi, blight, or other diseases injurious to grape vines or other trees or plants shall be destroyed under the direction of the said Inspector, and the expense connected therewith shall be borne by, and recoverable from, the importer of such vine cuttings.

5. The Department of Agriculture shall not be liable for any loss resulting from the destruction of any cuttings under the provisions of the preceding paragraphs, or by reason of the infertility of any such cuttings while in or after leaving their custody or whilst under their control.

Schedule.

Scale of Fees to be paid for the Inspection and Disinfection of Vine Cuttings and Buds.

	s.	d.
100 or less	2	6
Over 100 and not more than 500	5	0
Over 500 and not more than 1,000	10	0
Over 1,000—for every additional 1,000 or part thereof	2	6

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ORDERS REGULATING THE DISINFECTION OF IMPORTED TREES PLANTS, CUTTINGS (OTHER THAN VINES), GRAFTS, BUDS, SEEDS, PITS, SCIONS, AND FRUITS.

6. All fruit, fruit trees, plants, cuttings, grafts, buds, seeds, pits, or scions imported into the State of Western Australia shall be discharged direct from the ship or lighter into trucks, or as may be ordered by the Director of Agriculture, for immediate removal to the disinfecting sheds, and shall not be discharged upon any wharf, quay, jetty, or premises unless so ordered by the Director of Agriculture.

7. All consignees, agents, or other persons engaged or concerned in the importation into Western Australia of any fruit, fruit trees, plants, cuttings, buds (other than vine cuttings or buds), seeds, pits, or scions shall, within twenty-four (24) hours after the arrival of any such fruit, fruit trees, plants, cuttings, buds, seeds, pits, or scions, at the first port or place of debarkation in the State of Western Australia, deliver the same to the said Chief Inspector or Local Inspector, and unpack and prepare them for disinfection; and in the event of any such consignee or his agent failing to so deliver any such fruit, fruit trees, plants, cuttings, buds, seeds, pits, or scions within twenty-four (24) hours, as aforesaid, the Chief Inspector or Local Inspector shall seize the same. If, upon such seizure, the said fruit, fruit trees, plants, cuttings, buds, seeds, pits, or scions are found to be infested with any injurious insects (or their germs), or with fungi, blight, or other diseases injurious to fruit, or to vines or fruit trees, or to other trees or plants, the said Inspector shall immediately destroy the same; but if the said fruit, fruit trees, plants, cuttings, buds, seeds, pits, or scions are found, on inspection, to be free from injurious insects (or their germs), or from fungi, blight, or other diseases injurious to fruit, fruit trees, vines, or other trees or plants, the said Inspector shall treat the said fruit, fruit trees, plants, cuttings, buds, seeds, pits, or scions as may be prescribed by the Director of Agriculture, and hold same until applied for by the consignee or agent. Provided that, if the same be not applied for within forty-eight (48) hours from time of seizure, the same may be destroyed.

8. All fruit, fruit trees, plants, cuttings, grafts, buds, seeds, pits, or scions imported into the State of Western Australia are hereby required to be disinfected by the Chief Inspector or Local Inspector immediately upon arrival at the port or place where they are to be unloaded. If any of the said fruit, fruit trees, plants, cuttings, grafts, buds, seeds, pits, or scions are found to be infested with insects (or their germs), or with fungi, blight, or other diseases injurious to fruit or to fruit trees, or to other trees or plants, they shall remain in quarantine for a period of fourteen (14) days, or until the Chief Inspector or Local Inspector can determine whether the said trees, plants, cuttings, grafts, buds, seeds, pits, or scions are free from injurious insect pests or their eggs, larvæ, or pupæ.

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After inspection and disinfection, the Chief Inspector or Local Inspector shall issue a certificate, after the cases or packing or transportable material in which such fruit was packed have been disinfected, as prescribed by Order 11, and on the receipt of the fee for inspection and disinfection prescribed in Schedules I., II., and III. hereto. After disinfection, consignees or their agents must repack the fruit, fruit trees, vine cuttings, packages, or transportable material that have been disinfected, and remove the same within twenty-four (24) hours.

9. All peach, nectarine, apricot, plum, prune, almond, and all trees budded or grafted upon peach stocks or roots, and all peach or other pits, cuttings, buds, or scions raised or grown in any place where the "peach yellows," or the "peach rosette" are known to exist, are prohibited from being imported into the State of Western Australia.

10. The importation into any port in Western Australia of any fruit, plant, or part thereof, infested with the codlin moth, mussel scale, Queensland fruit fly, phoma, citricarpa, phylloxera, the San José or pernicious scale, the mining or chionaspis scale, the wax scale, or with internal parasites, such as the larvæ of the codlin moth, fruit flies, nematodes, or bacterial diseases, with melanose fungus, or with any pests, parasites, or fungi which may, from time to time, be declared as such by the Governor in Council, under Section III. of the Insect Pests Amendment Act, 1898, is absolutely prohibited.

11. Soil or compost in pots, cases, or packages, and transportable material of any kind used for packing or surrounding fruit is hereby prohibited from being removed from the first port or place of debarkation, or from being offered for sale, gift, distribution, or transportation until the said material (unless otherwise directed by the Director of Agriculture) has been disinfected by dipping the same and keeping it continually submerged for a period of not less than five (5) minutes in boiling water containing in solution not less than one pound (1lb.) of concentrated potash to each and every ten (10) gallons of water.

12. Fruit cases containing vegetables or vegetable matter other than fruit imported into the State, are also hereby required to be disinfected, as per Order 11, before removal from the first port or place of debarkation.

13. Any fruit, fruit trees, vine cuttings, packages, or transportable material delivered to the Chief Inspector or Local Inspector for disinfection, and not disinfected within forty-eight (48) hours by reason of the default of the consignee to provide the necessary labour for unpacking and repacking, may be destroyed by the Chief Inspector or Local Inspector.

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Schedule I.

Scale of Fees to be charged for Inspection of Fruit.

	s.	d.
56lbs. or under	2	6
Over 56lbs. and not more than 112lbs.	5	0
Over 112lbs. and not more than 224lbs.	7	6
Over 224lbs. and not more than 336lbs.	10	0
Over 336lbs. for every additional 112lbs. or part thereof	1	0

Schedule II.

Scale of Fees to be paid for the Inspection of Trees, Plants, etc., of all Descriptions other than Vine Cuttings.

	s.	d.
25 or less	1	6
Over 25 and not more than 50	2	6
Over 50 and not more than 100	4	6
Over 100 and not more than 200	6	6
Over 200 and not more than 300	7	9
Over 300 and not more than 400	9	0
Over 400 and not more than 500	10	0
Over 500, for every additional 100 or part thereof ...	0	9

Schedule III.

Scale of Fees to be charged for the Inspection and Disinfection of Gooseberries, Raspberries, Strawberries, Bulbs not in earth, and other small plants of a like nature, at the discretion of the Director of Agriculture.

	s.	d.
25 or less	0	9
Over 25 and not more than 50	1	3
Over 50 and not more than 100	2	3
Over 100 and not more than 200	3	3
Over 200 and not more than 300	4	0
Over 300 and not more than 400	4	6
Over 400 and not more than 500	5	0
Over 500, for every additional 100 or part thereof ...	0	6

Registration of Orchards, Vineyards, and Nurseries.

14. The owner or occupier or person in charge of any orchard, garden, nursery, vinery, vineyard, or hothouse, or any land used for the purpose of growing or cultivating any plants, shall register the same with the Director of Agriculture at Perth.

15. All packages sent away from any nursery containing fruit trees, vines, or other vegetation intended for sale, distribution, or gift, must be legibly marked with the name and address of the consignor and consignee, and a descriptive invoice of the contents must accompany same, together with a certificate to the effect that such contents have been disinfected, as may be prescribed from time to time by the Director of Agriculture, and are free from insects, fungi, blight, and all other diseases attacking fruit, fruit trees, and other vegetation.

16. Any vendor of fruit, grower, dealer, or auctioneer who shall sell, or attempt to sell, or offer or expose for sale, any fruit, fruit

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trees, plants, or other vegetation affected with the codlin moth, mussel scale, Queensland fruit fly, the phoma, citricarpa, phylloxera, the San José or pernicious scale, the mining or chionaspis scale, the wax scale, or with internal parasites, such as the larvæ of the codlin moth, fruit flies, or nematodes, or bacterial diseases, or melanose fungus, or with any other diseases which may, from time to time, be declared as such by the Governor in Council, shall be liable, on conviction, to a penalty not exceeding One hundred pounds (£100); and any Inspector or other authorised person shall seize and destroy such infected fruit, and the cost of such seizure and destruction shall be at the expense of and recoverable from the person selling or offering the said fruit for sale, gift, or distribution.

17. No compensation will be paid for any fruit, fruit trees, plants, cuttings, buds, seeds, pits, scions, cases, packages, or transportable material destroyed under these Regulations.

18. The use within the State of second-hand fruit cases, or cases or packages that may reasonably be supposed to have contained fruit, is prohibited, and the Chief Inspector or Local Inspector may order the disinfection of same, as provided in Order 11, or by any other means that may be prescribed by the Director of the Department of Agriculture, and failing such disinfection shall seize and destroy same.

19. The foregoing orders do not apply to any port or part of the State of Western Australia North of the 26th parallel of South latitude.

20. The importation into the State of Western Australia South of the 26th parallel of South latitude of fruit, fruit trees, plants, cuttings, grafts, buds, seeds, pits, or scions is prohibited except through the ports of Albany and Fremantle.

21. These Regulations came into force on the 1st day of August, 1902, and superseded those gazetted 6th July, 1901.

The ports of Albany and Fremantle have been appointed by the Agricultural Department to be quarantine grounds where plants and fruit, and the packages containing the same, or with which the same may have come in contact, may be detained for the purpose of being inspected, disinfected, destroyed, or otherwise disposed of.

Wine Production.

The quantity of wine produced in Western Australia from the 1903-1904 season's grape crop was 138,371 gallons. Of these, no less than 77,974 gallons were made in the Swan District, the Northam District coming next with 25,777 gallons, whilst the Wellington District accounted for 11,257 gallons, the Perth District for 9,812 gallons, the Katanning District for 5,501 gallons, and the Sussex District for 3,908 gallons. From 1896-7 to 1903-4 the wine production has varied between 75,693 gallons in the former year, and 185,735 gallons in 1901-1902. In 1902-1903 the quantity was 158,853 gallons.

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Most of the fruits mentioned in the above list are capable of extensive production, particularly grapes and oranges; also apples pears, peaches, plums, apricots, nectarines, etc.; whilst many others could be cultivated in those portions of the State which may be found suitable to their growth.

Experimental Farms.

In order to aid the farmers as much as possible in the matter of testing the value of new kinds of plants, and to facilitate the free distribution of new varieties of seeds, the Government for some years past have maintained a small Experimental Farm at Hamel, on the South-Western Railway line. For the use of this farm seeds of all kinds are obtained and experimented with, when those that are found to be of economic value are distributed amongst the settlers in various parts of the State. This scheme has proved of much value to the farmers, but, owing to the limited extent of land available at the farm, the quantity of seed grown is but small and insufficient to supply any demand, except in quantities of a few pounds. This difficulty has been recognised by the Government, as also has the necessity for carrying out similar experiments in other and drier parts of the State and under different conditions. With this object in view two new experimental farms have been recently established on a greatly extended basis—one at Narrogin, situated on the Great Southern Railway, consisting of about 1,000 acres, and another, of about 700 acres, on the Chapman Agricultural Area, to the North of Geraldton. At these farms various kinds of cereals are being thoroughly tested, and those that suit the district best will be noted, and seed in quantities supplied to any farmer who may want it. Stud stock are also kept and bred, and the young stock are being sold annually. The stock consists of Ayrshire and Dexter Kerry cattle, Clydesdale horses, Shropshire sheep, angora goats, and various kinds of poultry, including American bronze turkeys. Arrangements have been made for students who wish to learn practical farming being received on easy terms, and for sound instruction being given to them in all kinds of farm work, both in practice and theory, including the use of the various implements employed on the farm.

NOTES ON THE AGRICULTURAL DISTRICTS OF THE SOUTH-WEST.

(By Percy G. Wicken, Field Officer of the Department of Agriculture.)

The Swan District.

The Swan district, which lies to the north and east of the city of Perth, derives its name from the River Swan, which flows through the centre of it. It comprises some first-class country; the Swan flats round about *Guildford*, and those on the Helena River, composed of rich alluvial soil, will grow every kind of produce, whilst vines and fruit trees do exceptionally well; the growing of table

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grapes and wine-making being amongst the principal industries. Some of the oldest and best cultivated estates in the country are contained in this area. Some splendid orchards and nurseries are also found in the district. On its eastern side is the well known Darling Range of hills, over and into which three lines of railway run from *Midland Junction*, distant from Perth about 10 miles by both road and rail; in these hills the cultivation of strawberries is now largely carried on, in addition to general fruit-growing; citrus, summer fruits, apples, and pears, all do remarkably well in this locality, and being within driving distance of the city, the produce can be readily marketed, and at a minimum of cost, which is a matter of first consideration to the new settler. The land on the flats is timbered with banksia, Christmas tree, and blackboy, while on the hills the principal timber is jarrah, red gum, and white gum. The cost of clearing on the flats is very light, as the timber is valuable if sent to Perth for firewood. On the hills the timber is not at present worth much, but its value is increasing every year as it becomes necessary to go further afield for firewood. The cost of clearing in the hills ranges between £3 and £6 per acre, and jarrah timber can be easily obtained for building and fencing. A substantial vermin-proof fence can be erected for about £40 a mile. The annual rainfall is excellent, varying from 23 to 46 inches. For 1904 the rainfall was 34·57 inches, whilst the average for 24 years is 33·25 inches. The area under crop during 1903 was 929 acres. The average yield of wheat was 9 bushels per acre, whilst potatoes yielded an average of 1·1 tons. The area of land planted out for orchard and vineyard purposes comprised 164 acres. A flour mill is established at Guildford, and several timber mills are at work in the neighbourhood. The principal markets are of course the city of Perth and its suburbs, although a number of growers prefer to send their fruit and vegetables direct to Kalgoorlie on account of the extra price obtained on the goldfields. Large quantities of produce of all kinds are imported into Perth, where there is at the present, and will be for many years to come, an excellent market, provided, of course, the class of goods supplied is up to the requisite standard.

Situated from Perth in a Northerly direction on the privately-owned Midland Railway line, which runs between Perth and Geraldton, lies *Gingin*, at 50 miles distance by rail from the capital. This district is specially noted for two things—its oranges, the excellence of which is known all over Western Australia; and the fine cattle which are bred and fattened on the rich feed which grows on the flats at the foot of the Darling Range. For both citrus growing and the ordinary summer fruits this part is admirably adapted. Vegetables can be grown to perfection, and the Gingin brook, which runs through the centre of the area, affords a plentiful and permanent supply of good fresh water, which can be pumped up and used for irrigation wherever necessary. The country is undulating, some very good limestone country occurring at intervals interspersed with sandy patches, while the flats along the creek are composed of a rich loamy soil full of humus. The timber to be

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Ayrshire Dairy Cows, Swan.

Grazing Land, Beverley.

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cleared consists of banksia and red gum, and the cost of clearing varies according to the quantity and size of the red gum timber, but if previously ringbarked it can as a rule be burnt off for from £2 to £5 per acre. On the flats, where a quantity of paper-bark trees occurs, the clearing is more expensive, as this timber is hard to burn. A little jamwood occurs here and there, so that fencing posts can be obtained and a fence erected for about £35 a mile. The Midland Railway is built on the land grant system, and consequently most of the land along its route is in the hands of the Midland Railway Company; it is possible, however, that the Government may arrange to take the line over before long, and large areas will then be thrown open to the selector. The rainfall for the year 1904 was 35 inches. In addition, water can be obtained in most places by sinking. The area under crop for 1903 was 5,795 acres. Wheat yielded at the rate of 9·5 bushels per acre, oats 18·2 bushels per acre, and potatoes 1·4 tons per acre. The total area under orchard cultivation amounted to 215 acres. The train service consists of one train each way per day. There is no local market, and produce has to be sent either to Perth or the goldfields to find a market, the distances being 50 and 405 miles respectively.

The settlement of *Moora* is also on the Midland railway, and is distant 108 miles from Perth. Most of the land in the neighbourhood, of which there is plenty suitable for general farming, is in the hands of the Midland Railway Company. At present, unfortunately, there are but few farms, the principal industry being stock raising. The country is undulating, and the soil, which varies from red loam to sand, with granite outcrops in places, is very suitable for wheat-growing, and, when better known, the district should quickly become a large wheat-producing centre. The timber, which consists of York, white, and salmon gum trees, can, when ringbarked, be cleared for from £1 10s. to £3 per acre. Plenty of good gum timber can be obtained for fencing and building purposes, and a good fence can be erected for about £30 a mile. Good stock water can, in most parts, be obtained by sinking. The area under crop for the year 1903 was 6,700 acres, the average yield of wheat being 13·4 bushels per acre; of oats, 23·2 bushels per acre; of potatoes, 1·6 tons per acre; while the area planted with fruit trees and vines was 183 acres. The rainfall varies from 10 to 23 inches, spread over about eight months of the year, the summer months being dry. The maximum rainfall was attained in 1904. A train service of one train a day each way is provided. There is no local market, and produce has to be sent to either Perth or the goldfields. A few miles to the east of Moora is situated the well-known *New Norcia native mission* settlement, where, under the careful superintendence and supervision of the Benedictine Monks, cultivation is admirably carried out on an extensive scale, all kinds of products being grown to perfection.

The Northam District.

Northam, the largest agricultural town in the State, is the centre of a large and prosperous area. It is 66 miles from Perth

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and 309 miles from Kalgoorlie, on the main railway line. The pipe line of the Coolgardie Water Supply Scheme passes through the town, and a plentiful and constant supply of water is provided from this source. The town is pleasantly situated on the banks of the Avon River, and has a large town hall and other public buildings; it is lit by electric light, and has a telephone exchange. The district is well adapted for general farming, but more especially for cereal growing, sheep farming, and dairying. The rainfall during 1904 was 24 inches, the average for 25 years being between 15 and 16 inches. It is mostly obtained during eight months of the year; the remaining summer months are dry; sufficient rain, however, always falls to mature the cereal crops. At the present time wheat and chaff form the main crops of the district, but settlers are turning their attention to other crops which are thought likely to be more profitable. The timber consists of jamwood, and York and white gum, and when ringbarked is easily burnt off, the cost ranging from £1 to £2 per acre when dry. The country is, as a rule, undulating, and the soil mostly a chocolate loam; to the eastward, however, the sand plains are now being cultivated, and with the use of fertilisers some excellent crops are obtained from land that a few years ago was considered absolutely worthless. In new country plenty of jamwood posts are at present available for fencing, but in the older settled parts they have been mostly cut and used. If posts are obtainable, a good fence may be erected for about £30 per mile. Travelling plants are available in this district to do threshing, chaff-cutting, and such like work at contract rates. The total area under crop in the district for 1903 was 50,525 acres, and the average yield of wheat was 16 bushels, and of oats 26·9 bushels per acre; whilst potatoes, which are only grown on a small scale, yielded 2·7 tons per acre. A total of 320 acres was under orchard crops. Two flour mills as well as numerous business establishments exist in the town, so there is a good local market for wheat and a small one for general produce in the town itself; but the natural market is the Kalgoorlie and the Eastern Goldfields, with which the town is in direct railway communication and where the great bulk of the produce is sent. A certain quantity of chaff and other products, however, find their way to Perth and Fremantle. The train service is very good, four passenger trains running each way to Perth every day, and two trains to the goldfields, as well as numerous goods trains both ways.

Toodyay is an old settled district amongst the hills about 64 miles from Perth, the township of *Newcastle* being the centre of the district. It is connected by railway with the main line from Perth to the Goldfields, a branch line running from Clackline Junction to Newcastle. It is a splendid agricultural district, and suitable for all kinds of mixed farming, vine growing, wine making, orchard cultivation, the growing of wheat and raising of stock all being extensively carried out. The country is hilly, and under natural conditions is well grassed; the soil a good chocolate loam with here and there gravelly patches on the hills and granite outcrops. The timber consists of jarrah, white gum, salmon

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gum, and raspberry jam, and after ringbarking is cleared at a cost of from £3 to £6 per acre. Jamwood, which is plentiful, is largely used for fencing material, and being one of the hardest timbers, and as a rule of a convenient size for posts, is of special value for this purpose. A good fence can be put up for from £30 to £35 a mile. The Avon river, which runs through part of this district, furnishes in the large deep holes plenty of permanent water for stock during the summer, whilst as a rule in other parts water can be readily obtained by sinking. The rainfall is good, and, although light during the summer months, is sufficient for the cereal crops, the average fall for 24 years being 20 inches, whilst in 1904 no less than 31 inches fell. The area of land under cultivation in 1903 was 27,741 acres; the average yield of wheat is 14 bushels per acre, and of oats 21·5 bushels per acre, whilst potatoes yield at the rate of 1·5 tons per acre. The area of land planted as orchard and vineyard is 664 acres. A flour mill is established in Newcastle, and wheat can be disposed of locally, whilst other produce has to be sent to Perth or the Goldfields to find a market. The journey to Perth by rail takes four hours. A service of two trains each way a day is provided, and connection is also made at Clackline with the trains running to the Goldfields.

The York District.

York is prettily situated among the hills on the railway line from Perth to Albany, at a distance of 78 miles from Perth, and is one of the oldest farming districts of the State. The township is the centre of a large and prosperous agricultural area. It is only 24 miles distant from Northam by rail, and has a branch railway running 14 miles out to Greenhills, which taps a large area of good agricultural land in this district. The country is undulating, with a few large hills; the River Avon flows through the town, and the soil is mostly a chocolate loam. Several large estates in the locality have been purchased and subdivided to provide blocks for closer settlement. The country is well adapted for growing wheat, of which there is a large area under crop, also for sheep breeding and general farming, as well as fruit-growing, the orchards already in the district producing some excellent fruit. This district has taken the prize at the National Show for two years running for the best exhibit of fruit and produce. Fresh water is available from the Avon, and water can be obtained by sinking in almost any part. The rainfall is from 11 to 24 inches per annum, distributed over eight months of the year. In 1904 the amount that fell was 23 inches. The timber consists of jamwood, York gum, and white gum, and, if previously ringbarked, can be burnt off at a cost of from £1 to £2 per acre. Plenty of jamwood is available for posts, and a good fence can be erected for about £35 a mile. The area under crop for 1903 was 28,754 acres; the average yield of wheat was 17·8 bushels per acre, of oats 20·9 bushels per acre, and of potatoes 1·4 tons per acre; the area of land under orchard crops was 261 acres.

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Two flour mills, a tannery, and a bacon factory are at work in the town, and all the wheat produced can be disposed of locally, while the bulk of the chaff and such like products can either be sent to Perth or the goldfields markets; butter and all small products generally find a ready local market. Fruit, etc., brings a good price on the goldfields, and well repays the extra expense incurred for freight. A passenger service of three trains each way a day is provided, as well as goods trains, and goods for the goldfields are sent *viâ* Spencer's Brook, the distance being 333 miles.

On the Southern Railway, 20 miles south from York, is *Beverley*, the centre of another agricultural area, which adjoins that of York, and contains some excellent red chocolate soil. It is distant 98 miles from Perth by rail, and from Albany 242 miles. The country is undulating, and produces some excellent crops of wheat, for which it is well adapted, as well as for stock raising and general farming. Like York, the land is mostly settled, and those requiring land have to go some little distance out. The rainfall amounts to from 7 to 24 inches per annum, and the climate is hot in the summer. The timber consists mostly of York gum and jamwood, and when ring-barked can be burnt off for from £1 to £3 per acre. A limited quantity of jamwood is available for fencing posts, and a good fence can be erected for about £35 per mile. The Avon and the Dale run through this district, and water suitable for stock can be obtained in most parts by sinking.

The total area of land under crop for 1903 was 28,592 acres, the average yield of wheat being 17·4 bushels per acre, and of oats 21·7 bushels per acre, potatoes yielding at the rate of 2 tons per acre. The area under cultivation for orchard purposes was 164 acres.

The railway service provides three passenger trains each way a day, besides several goods trains. The trains running to Perth connect at Spencer's Brook with the train running to the goldfields; produce can thus be sent direct to Kalgoorlie, a distance of about 353 miles. A flour mill at work in the town furnishes a local market for wheat, but other produce has to be sent to Perth or the goldfields. Buyers, however, frequently travel about the agricultural districts negotiating for the purchase of produce, and no difficulty is experienced in selling locally, if it appears desirable to do so.

The Murray District.

Pinjarra is a small township on the South-Western railway line, about half way between Perth and Bunbury, and is distant 54 miles from Perth by rail. It is the centre of a large and comparatively well settled agricultural area, and some thriving homesteads are here situated. The country is well suited both for stock raising and general farming, and fat stock can generally be obtained here during the greater part of the year. Fruit growing is very successfully carried on, orange and lemon trees as well as summer fruits doing exceedingly well in this locality. The Murray River runs through the district, and water is plentiful, being readily obtainable by sinking. The country is flat towards the coast; to the East,

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Stud Shropshire Ram at farm near Bunbury, S.W.

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amongst the hills, there is abundance of land available suitable for growing grape vines to perfection. The timber consists of banksia, nuytsia, and blackboys on the flats, and jarrah, red gum, and white gum on the hills; the cost of clearing varies from £3 to £8 per acre. Plenty of good jarrah is available in the hills for building and fencing purposes. A good stock-proof fence with vermin-proof netting can be erected for about £40 per mile. The rainfall is good, averaging 38 inches per annum, and is spread over eight months of the year.

The area under crop during the year 1903 was 2,796 acres. The average yield of wheat was 9·6 bushels per acre; of oats 19·4 bushels per acre, and of potatoes two tons per acre. The area cultivated under fruit trees and vines was 419 acres. Pinjarra being on the main line, a frequent railway service is provided, three passenger trains running daily each way, as well as numerous goods trains. Being purely an agricultural district, only a very limited local market is available, and goods are sent to either Perth or on to the goldfields. On the coast, at a distance from Pinjarra, by road, of 12 miles, is *Mandurah*, a small holiday resort, where a number of visitors go in the summer months to enjoy the excellent fishing there obtainable, the journey being accomplished by means of a regular and efficient coach service.

The Wellington District.

Bunbury, the principal town in the Wellington district, is the centre of a large area of good agricultural land in the South-Western portion of the State. Situated on the sea coast, it is also the principal port between Fremantle and Albany, as well as being a holiday resort for visitors from the metropolis and the goldfields. It is the main depôt for the jarrah timber cut at the various timber mills in the South-Western district, which is brought down by train and shipped at this port; as many as 40 ships being sometimes in port loading at the one time. Three passenger trains run between Perth and Bunbury, each way, daily, as well as numerous goods trains, the distance by rail being 115 miles. A branch line runs to Bridgetown, situated at a distance of 67 miles from Bunbury, another to Busselton, at a distance of 42 miles, and a third to the Collie coalfields, at a distance of 41 miles, of all of which places Bunbury is the natural centre.

In the immediate vicinity of the township are numerous thriving farms. The country is flat near the coast, gradually becoming hilly further inland. The soil is specially suitable for fruit-growing and general agricultural produce, potatoes doing particularly well, as indeed do nearly all kinds of vegetables. Maize and such like crops will also flourish in this locality. Cereals, on the whole, do fairly well both for grain and hay, and although this district cannot be classed as ideal wheat country, it is undoubtedly admirably suited for mixed farming. Plenty of good swamp land exists in this locality, which is largely availed of for growing summer crops. The timber principally met with consists of various kinds of banksia, ti-tree,

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and a number of smaller shrubs, the cost of clearing varying from £3 to £15 per acre, according to locality. Plenty of good jarrah timber is available within convenient distances for fencing, building, etc., a good substantial fence costing from £30 to £40 per mile. The area in the district under crop for the year 1903-4 was only 7,902 acres, the average yield of wheat being 10·1 bushels; of oats 18·9 bushels; whilst potatoes gave a return of 2·6 tons per acre.

The area of land planted out for orchard and vineyard purposes was 1,094 acres. The rainfall of the district varies from 25 to 54 inches per annum, and for 1904 amounted to 33 inches. The town at present contains a population of about 3,000, which, together with that of the shipping in the harbour, constitutes an ample market for the produce of the farms in the district. The employees also of a number of timber mills, situated a few miles away among the hills, consume a large quantity of produce. For any surplus ready markets are available, where the best prices are always to be obtained for good produce, in Perth and the Eastern Goldfields, the latter 490 miles away, being reached by rail *via* Perth.

Donnybrook, a town of about 600 inhabitants, lying 25 miles south-eastward from Bunbury, on the Bunbury-Bridgetown railway, is a busy centre, where both the mining and agricultural industries are mutually represented. The township is situated at the commencement of the hilly country, and after leaving Donnybrook the railway line rapidly rises among the hills. The country here is particularly well suited for all kinds of orchard work; small fruits, such as cherries, gooseberries, and strawberries, all grow luxuriantly, whilst rhubarb and all other vegetable produce do equally well. The soil consists of red loam, sand, and, on the hills, an ironstone gravel. The rainfall varies between 29 to 37 inches, and is distributed over about nine months of the year. For 1904 the amount of rain that fell was 35 inches. The temperature is equable, not too hot in summer, with light frosts occasionally in winter. Two passenger trains each way per day at present run to Bunbury and Perth, the latter distant 132 miles, as well as goods trains to suit the traffic. The timber consists of jarrah, redgum, blackbutt, and blackboys or grass trees. The clearing required is in places fairly heavy, and will cost from £6 to £18 per acre. Plenty of good jarrah timber, which splits well, is immediately available for fencing and building purposes, and a good fence can be erected for £30 per mile. Being near the timber mills, rough timber suitable for farm buildings can be obtained at a very low rate. Along the Preston River, in this locality, some very good land is available, suitable for growing all kinds of vegetables. The area under crop in this neighbourhood during 1903 was 1,423 acres, from which the average yield of wheat was 10·2 bushels per acre; and of oats 25 bushels per acre; whilst potatoes yielded 3·8 tons per acre. The area of land under fruit trees and vines was 139 acres. A local market for fruit and vegetables exists with the mines and timber stations, the surplus being sent to Bunbury, Perth, which

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can be reached in eight hours by rail, and the goldfields, where there is always a good market. The township contains several hotels, a post and telegraph office, and some Government offices connected with the Mining Department. In addition to the railway line, there is a very good road between Donnybrook and Bunbury.

Yarloop is a township situated on the railway line between Perth and Bunbury, about 78 miles from Perth, and is the centre of a good agricultural district. The surrounding country is flat and well watered, and rich patches of loamy soil are of frequent occurrence. The country is well suited for growing summer fruits, such as peaches, apricots, etc., as well as vines; good grass grows on the flats, and dairying can be profitably carried on. The country is well and conveniently adapted for sheep breeding, to supply the local meat markets. The timber on the plains chiefly comprises banksia and nuytsia, whilst, on the hills to the East, jarrah, redgum, and whitegum predominate. The cost of clearing varies, according to locality, from £4 to £12 per acre, and plenty of jarrah timber is readily available for building and fencing purposes. Fencing can be erected at from £30 to £35 per mile. To the East of Yarloop the country is hilly, and some excellent sites for orchards and vineyards are to be obtained within easy distance of the railway. The rainfall is good, and in 1904 amounted to 42 inches. The area of land under cultivation during 1903 was 2,220 acres, and the average yield of wheat 10·1 bushels per acre; of oats 13·0 bushels per acre, whilst the potato crop yielded two tons per acre. The area of land planted out with fruit trees and vines was 305 acres.

Yarloop being on the main line, a good train service is naturally available for market purposes, three passenger trains a day each way running to both Perth and Bunbury, as well as numerous goods trains. At Yarloop "Millar's Karri and Jarrah Company (1902), Ltd.," have their repairing shops, where a large number of men are employed. The company also has a branch line running out to their several mills in the jarrah forests. All this makes a small local market for vegetables, fruit, and dairy produce.

The Collie District.

In the district of which the town of *Collie* is the centre are situated the Collie coal mines, where a large number of men are employed, and, as a natural consequence, a very fair market exists for agricultural produce. In addition to the mining industry, there are several timber mills, and a large number of men are constantly employed in hewing railway sleepers. The town is reached by a branch railway from the Brunswick Junction, a distance of 25 miles, and is 124 miles from Perth, and 41 miles from Bunbury. A passenger service of three trains per day, as well as a frequent service of coal trains, places it in direct and constant communication with the metropolis. It is also intended in the near future to extend the line to Narrogin, on the Great Southern Railway, which will open up a large stretch of new

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agricultural country. The rainfall is 28 to 38 inches per annum, the country undulating, the soil very fair, with patches of good swamp lands, and generally suitable for mixed farming and stock-raising. The timber consists of jarrah forest, with areas of white and red gum and blackbutt. The Salvation Army has recently established a large home and farm in the district, which is producing good crops of all kinds. The Collie coalfields being the only ones at present opened up in the State, a good future market for agricultural produce of every kind should here be assured. Plenty of excellent jarrah timber is available for building and fencing purposes. It has been found that the best way to clear the timber is to first ring-bark it, then break it up by the use of explosives, and then burn it. This system can be carried out at from £3 to £10 per acre. Fencing can be erected for from £30 to £40 per mile. The total area under crop in 1903 was 463 acres. The average yield of wheat was 10·7 bushels per acre; of oats, 22·5 bushels per acre; and of potatoes, 2·7 tons per acre. The area of land under fruit trees and vines was 41 acres. The population of the town of Collie is about 2,000, and as most of the present inhabitants are either engaged in mining or timber-cutting, there should be a good opening for dairy farming and vegetable-growing.

The Blackwood District.

Greenbushes, a town situated on the Bunbury to Bridgetown railway line, is about half way between Donnybrook and Bridgetown; it is 52 miles from Bunbury by rail, and is also connected by road both with Bunbury and Bridgetown. It is situated on one of the highest points along this line, being 947 feet above sea level. Although principally known for the quantity of tin which is obtained in the locality, the district also contains some very fine agricultural land. It is a hilly country and, like that around Bridgetown, is admirably adapted for the culture of apples and other similar fruits, as well as small fruits, such as cherries, gooseberries, etc. A few miles from Greenbushes is situated one of the best nurseries in this State, where large numbers of fruit trees are raised and sent to all parts of Western Australia. The soil and climate seem particularly adapted for this class of work, as well as growing vegetables and general garden produce. The flat lands in this part will, when cultivated, grow splendid crops of lucerne. The rainfall is good and well distributed during the greater part of the year, the fall being 29 to 49 inches per annum, the amount for 1904 being 32 inches. The country is hilly, and the timber, which is heavy, consists of jarrah, redgum, and a little blackbutt, while blackboys and scrub are plentiful. The cost of clearing will vary from £6 to £20 per acre; but a large quantity of the timber cleared will be found valuable for fencing and building purposes. If not required for this, it can be turned into money for sleepers for railway purposes, or large timber for piles, etc. A good fence can be erected for £30 per mile, jarrah being the best timber to use for posts.

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The area placed under crop for 1903 in this district was 890 acres, wheat yielding an average of 20·0 bushels per acre; oats 20·0 bushels per acre; whilst potatoes yielded 3·2 tons per acre. The train service, which is sufficient for present needs, consists of one train per day, connecting with Bunbury and Perth, and in the busy season extra goods trains are run. A very fair market exists for vegetables, etc., in the district, to supply the needs of the mining and timber community. The apples and other fruit are sent either to Perth, a journey of 10 hours by train, or to the Goldfields *via* Perth. There is a good demand at present, and will be for some years to come, for fruit in the larger towns, and as production increases there is no doubt that such fruits as apples and pears will be shipped in the future direct from Bunbury to Europe.

Bridgetown is at present the terminus of the railway, and is a pretty township built between the surrounding hills. It is 174 miles by rail from Perth, which is reached in about 11 hours, one train running each way daily. This may be said to be the centre of the apple-growing industry, an industry which has made great strides in the past few years, and one which is likely to assume very large dimensions in the near future. Summer fruits, as well as cherries, grow freely in this district, and at the annual fruit show a first-class collection of fruit is exhibited. The country is hilly, and the timber principally consists of jarrah and redgum, with large blackboys, which in some parts are very plentiful. The cost of clearing varies from £6 to £18 per acre. The rainfall averages about 33 inches per annum, and the nights are cooler, and frosts more frequent than near the coast. The Blackwood River runs through this district, and some excellent land is available a few miles from the town. Although from the orchardist's point of view it is an ideal fruit-growing country, it is also well adapted for stock raising, and some excellent herds of cattle and sheep are bred in the locality. Jarrah timber is available for fencing and building purposes, and a good fence can be erected for £30 per mile. The area under crop during the year 1903 was 2,919 acres, and the average yield of wheat was eight bushels per acre; while oats yielded 16·6 bushels per acre; and potatoes 2·4 tons per acre. Although not a corn-growing district, enough cereals can be grown to give a supply of hay sufficient for the use of the stock. The area of orchard land already planted out is 711 acres, and is increasing rapidly. A large number of men are employed in this district hewing sleepers for railway purposes and carting same to the railway, which population affords a small and somewhat uncertain market for vegetables, etc., but the bulk of the fruit produced is sent direct to Perth and the Goldfields.

The Busselton District.

The chief town of this district is *Busselton*, better, perhaps, known as "*The Vasse*," the terminus of a branch railway line from Bunbury, from which it is 42 miles distant. It has a daily service of one train each way to Perth via Bunbury. Situated on

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the coast, especially in the hotter months, it is visited by a large number of people as a holiday resort. Visitors to the celebrated Margaret River Caves finish their railway journey here, and travel on by coach, consequently a number of tourists are generally staying in the town. The country in the vicinity of the town is flat, interspersed with a large amount of swamp land, which dries up during the summer, and affords splendid areas for growing vegetables and all kinds of summer produce. The flat country carries splendid feed for stock, and the district is particularly adapted for the dairying industry, which, at the present time, is a very profitable undertaking in this State. A butter factory is in operation in the town, and there is a ready and handy market for all dairy produce in the metropolitan area. The country is well watered, and the soil on the flats is a rich loam. The principal timber is banksia, Christmas tree or nuytsia, and grass tree; on the higher country, further inland from the coast, white and red gum trees, as well as tuart, abound. The clearing costs from £4 per acre if the timber is dry, to £12 per acre if green, according to locality. Timber for farm buildings and fencing is obtainable near at hand, and a good fence can be erected for from £28 to £35 a mile. The area under crop during the year 1903 was 1,639 acres, and the small amount of wheat grown averaged 10·7 bushels per acre; the average for oats being 15·5 bushels per acre; whilst potatoes yielded 3·9 tons per acre. The rainfall is fairly heavy, being 20in. to 44in. per annum, and the amount of land planted out as orchard, etc., was 211 acres.

The Williams District.

Narrogin is situated on the Great Southern railway line, half way between Perth and Albany, and is the centre of a rapidly rising agricultural district, which, owing to its having been decided to build a railway connecting the district with the Collie coalfields, and thereby open up a large area of good country, has attracted a large number of settlers during the past year. A very considerable area of country has been recently applied for, and new settlers are commencing to clear land and build houses in all directions. The Narrogin-Collie railway, when completed, will connect the Great Southern and South-Western lines, and give settlers in this district direct communication with the port of Bunbury. The country, which lies high, is undulating, the highest point on the railway line in this direction being 1,100 feet above sea level. The soil is patchy, some very good loamy soil being obtainable, while the tops of the hills are usually an ironstone gravel. The land is well adapted for wheat growing, sheep breeding, and general mixed farming, as well as dairying. Although the "York Road" and "Box" poison grow on this area, if they are carefully and systematically hoed out, stock can be depastured with very little risk.

The timber consists of whitegum and jam wood on the flats and better soil, while on the ridges and sandy flats the redgum grows well. If ringbarked, the whitegum and jam wood can be burnt off for 30s. to 50s. per acre, but the redgum country costs from £3 to £5

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per acre to grub. Plenty of jam wood posts are available for fencing and a good fence can be erected for about £80 a mile. The area under crop in this locality during 1908 was 11,442 acres, the yield of wheat being 12·4 bushels per acre; of oats 13·8 bushels per acre; and of potatoes 1·4 tons per acre. 108 acres were planted with fruit trees and vines. The rainfall is good and well distributed, amounting to from 13in. to 24in. per annum. The train service consists of one passenger train each way a day, and goods trains as required. The distance by rail is 162 miles from Perth and 178 miles from Albany. An up-to-date flour mill has recently been erected in the town, and wheat can be sold or treated locally, while other produce is sent to Perth or the Goldfields. Owing to the number of new settlers, there is at present a good local market; but as things get better established residents will probably grow their own supplies.

An Experimental Farm has been established within four miles of the town, where students are received at a nominal fee for a course of instruction, and where settlers can obtain all necessary information in regard to crops and cropping. A large number of experiments with crops and manures are now being carried out. Poultry and stock breeding are also both engaged in, the eggs and young stock being sold to settlers at reasonable rates.

The small township of *Williams* is reached by road from Narrogin, the distance being 18 miles, in a westerly direction. To reach Williams from Perth by railway necessitates a journey of 162 miles by rail and 18 miles by road, but it can be reached by road from Perth direct in 100 miles. The township is situated on the main road from Perth to Albany, and in the early days of the Colony was an old mail coaching centre. Before the Great Southern Railway was built, the Williams was a place of some importance, and as the proposed railway from Narrogin to Cue will pass, when constructed, directly through the town, it has now once again been brought into prominence. Some excellent land is situated in this district, the country being hilly and undulating, and the rainfall fair; the average being from 14 to 26 inches per annum. The timber consists of white and red gum and jam wood, while the stinkwood, which grows freely in places, is very good feed for stock, as when feed is scarce, cattle do well on it. The larger timber, if ringbarked, can be cleared for from £2 to £5 per acre. The district is well adapted for wheat growing and general farming, as well as sheep breeding, and some very good holdings are situated close to the town. Plenty of timber for fencing and building purposes is obtainable, and a good fence can be erected for about £80 a mile. The area under crop for the 1908 season was 3,044 acres, and the wheat yield 10·1 bushels, that of oats 11·8 bushels, and potatoes 1·5 tons per acre, while the area under orchards and vines is 32 acres. A small flour mill is situated in the township, capable of dealing with the present output of local wheat, and a small timber mill is also at work supplying the timber required for local purposes. Williams being some distance from the railway, the principal products up to the present time have been the stock;

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but when the new railway is built, general farming will certainly become profitable. There is a good road, which passes the Experimental Farm, on the way to the Narrogin Railway Station, to which the produce and fruit is usually carted for transport to the Goldfields. A coach runs twice a week to Narrogin for the conveyance of the mails.

The Katanning District.

Situated on the Great Southern Railway, 32 miles to the South of Wagin, and distant from Perth 225 miles, is *Katanning*, the centre of the most important agricultural settlement on the Great Southern line. The first settlement along that line took place around here, and consequently the country is more developed than in the newer places, and the farms have larger areas under cultivation. The land is undulating, and the soil varies considerably —from a rich chocolate loam and black sand in some parts, to a light sandy and gravelly soil in others. The timber consists of white, red, and flooded gum, with jarrah, sheaoak, and stinkwood in small quantities in some localities. If ringbarked, the land can be cleared at prices ranging from £1 to £3 per acre. Timber for building and fencing purposes is easy to obtain, and a good fence may be erected for about £30 a mile. The rainfall is good, the average being between 16 and 17 inches per annum. The country is admirably adapted to mixed farming, stock-raising, and fruit-growing, as well as for the production of grapes and for wine-making. An excellent road, which runs westward to Kojonup, opens up a large stretch of good country, and brings a lot of traffic into the town. The total area under crop in the district for the year 1903 was 23,756 acres; the wheat crop averaged 9·1 bushels per acre, oats 11·4 bushels per acre, whilst potatoes yielded 1·7 tons per acre; the area of land under orchard cultivation was 411 acres. A large flour mill is established in Katanning, capable of dealing with the whole of the present wheat crop of the district, and all wheat can be disposed of locally; the company that owns the mill also has a chaff-cutting plant, and deals largely in chaff and all kinds of produce. For other markets settlers have to look to Perth or the goldfields, to both of which large quantities of produce are consigned. Katanning being only about 100 miles from Albany, wool and other produce requiring shipment can be sent there, when a considerable amount of freight is saved. The train service consists of one train each way a-day, the time of the journey to Perth being 12 hours; goods trains also run as occasion demands.

Wagin is situated on the Great Southern Railway, 31 miles South of Narrogin, and 193 miles from Perth. It is not so high above sea-level as Narrogin, and the country is more level, several large lakes occurring in the vicinity. East and West of the township are found extensive areas of good agricultural country. Several large estates have been taken up in this neighbourhood lately, and a number of good stock have been introduced. The land is suitable

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Clearing York, White, and Salmon Gum Country 20 miles East of Katanning.

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for wheat-growing, sheep-breeding, and general farming, and some good orchards are in bearing close to the town. Wagin is the collecting centre of a large area to which the surrounding farms cart their produce for transport to market by rail. The rainfall is good, and varies from 13 to 23 inches per annum. The timber consists of white and red gum; jamwood and mallet on the ridges. If previously ringbarked, the land can be cleared for from £1 to £3 per acre, according to the quantity of red gum that has to be dealt with. Good jam wood is available for fencing-posts, and a stock-proof fence can be erected for about £35 a mile. The area under crop in 1903 amounted to 16,069 acres, the average yield of wheat being 8·7 bushels per acre, of oats 12·0 bushels per acre, and potatoes 2·0 tons per acre; whilst the area then laid out with fruit trees was 275 acres. In addition to the above, some very good crops of malting barley, for which the land is very suitable, have been grown. All wheat grown in this district has at present to be sent either to Katanning or Narrogin for gristing, as there is no local mill available; but this is a defect which will no doubt soon be remedied, as the quantity of wheat produced is increasing every year. Other produce is sent either to the Perth or the Goldfields market; many growers, however, sell to the local firms, or to buyers from the metropolis, forwarding the produce direct from the farm to its ultimate destination. The train service consists of one train each way a-day, and goods trains run as necessary, according to the season of the year.

Kojonup, situated 26 miles South-West of Katanning, is connected with the latter place by a good road, which passes through a well settled area of country. It was originally one of the old coaching stations on the Perth to Albany main road, and is one of the oldest settlements in the State, but unfortunately, owing to lack of railway communication, it has not at present made much headway. The land in the vicinity of the townsite is now, however, being rapidly taken up. The country is undulating, and the soil composed mostly of good chocolate loam, some poor sandy patches occurring here and there. It is within the poison area, and "York Road" and "Box" poison are plentiful, and require to be carefully eradicated before the land is stocked. The timber consists of white gum, red gum, jarrah and jamwood, and, if ringbarked, can be burnt off for from £1 to £4 per acre. Good timber for fencing and building is plentiful, and a substantial fence can be erected for £30 a mile. The rainfall is sufficient, amounting to 21 inches per annum, and the country is well adapted for all kinds of general farming, stock-raising, and orchard work. After ringbarking the grass soon improves, and some good stock are raised in this part. The total area under crop for 1903 was 3,567 acres; the wheat yield averaged 6·6 bushels per acre; oats 9·5 bushels per acre; whilst potatoes produced 2·0 tons per acre; the area of land under fruit trees and vines was 60 acres. The flour mill at Katanning affords a ready local market for all the wheat grown, whilst other produce can be either carted to and sold in Katanning, or there put on the train for Perth or the goldfields. Water can be readily obtained in almost any part of the district by

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sinking, and as the ground, as a rule, holds well when dams are made, water can be also conserved in this manner.

On the Great Southern Railway, 12 miles to the South of Katanning, and 237 miles by rail from Perth, lies *Broome Hill*. In this district there are a number of good farms. A moderate quantity of wheat is grown here, but the industry principally followed is sheep-breeding. The country is undulating, and the soil is patchy, but some very good chocolate soil is to be found interspersed with patches of gravel and white sand. The timber consists of white and red gum and jamwood, and, if ringbarked, can be burnt off for from £1 to £3 per acre. Timber for fencing and building is plentiful, and a good fence can be erected for about £30 a mile. The average rainfall is 18 inches per annum. The total area under crop for 1903 was 6,745 acres. The average yield of wheat was 7·6 bushels per acre, of oats 11·8 bushels per acre, and potatoes yielded at the rate of 1·0 tons per acre; the area of land under orchard cultivation was 131 acres. Water can either be obtained by sinking or by conserving in dams. The train service consists of one train each way a-day. A market is available at the Katanning mill for all the wheat grown, and other produce can be sent by rail to either Perth or the goldfields. Wool and such-like products can be shipped in Albany or sold to the wool-brokers at that port.

The Plantagenet District.

Mount Barker is situated on the Great Southern Railway, 302 miles from Perth, and 38 miles from Albany. This is one of the best orchard districts in the State, and as a natural consequence, some of the best orchards are to be found in this district. Excellent fruit is produced here, the apples especially being exceptionally fine. The rainfall is fairly heavy, being between 26 and 27 inches per annum, whilst during 1904 it amounted to 30 inches. Not much wheat and cereal crop is grown in this part, except for hay, and then mostly for local use, the cool climate and quality of the soil being more especially adapted for orchard purposes and vegetable growing. The country is undulating, and the soil varies from rich chocolate loam and black sand to poor white sand. The timber is, as a rule, heavy, and consists of jarrah, white and red gum, and yate, and if cleared green, would cost from £10 to £12 per acre; but if ringbarked, and then left for a year or two, the clearing can be done for about half this amount. Good white gum posts are readily obtained for fencing, and timber for rough buildings is everywhere plentiful. A good vermin-proof fence can be erected for less than £40 a mile. The total area under cultivation for 1903 was 2,879 acres; the yield of wheat being 8·7 bushels per acre; and of oats 14·2 bushels per acre; whilst potatoes yielded 1·5 tons per acre; the area planted out with fruit trees and vines being 565 acres. The train service provides for one train each way a-day. The journey to Perth takes 15 hours, but Albany can be reached in two hours. There is little or no local market for the produce, the fruit and vegetables being, as a rule, sent direct to the goldfields; some,

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however, finds its way to the Perth market, where the products of the district are noted for the excellence of their quality. A quantity of butter is also made in this district, and an exhibitor from Mt. Barker was successful in carrying off the Silver Cup given at the Narrogin Show this year for the best exhibit of butter. Taking into consideration the large amount of good land available and the plentiful rainfall, there should be a great future before the Plantagenet district.

The Victoria District.

Situated on the coast, 306 miles north of Perth, lies *Geraldton*. It is connected with the capital by railway as well as by a frequent and regular service of steamers, and is the receiving and shipping port of a large area of agricultural land, as well as of the Murchison Goldfields, a line of railway connecting it with Nannine, 310 miles away, whilst a short branch line runs to the Northampton lead and copper mines, 34 miles distant. The rainfall varies from 11 to 29 inches per annum, and with careful cultivation splendid crops of all kinds can be produced. The district is especially adapted for raising early fruit and tomatoes for market purposes, for which excellent prices are always obtainable. Wheat-growing and sheep-breeding are also extensively carried on, and settlement has widely extended within the last two years, a large quantity of wool being now shipped, and some excellent cattle bred. The country is undulating, and the soil varies from a chocolate loam to what is known as "sandplain" country, which latter, however, recent experiments demonstrate, can, with the addition of a little fertiliser, be made to carry a good cereal crop. The timber consists of white gum, York gum, jamwood, and wattle, and can be cleared for about £3 per acre, whilst plenty of timber can be conveniently obtained for fencing purposes, a good fence costing about £30 a mile. The total area under crop for the year 1903 was 4,317 acres; the yield of wheat being 9·5 bushels per acre; and of oats 15·2 bushels per acre; whilst potatoes yielded at the rate of 2·2 tons per acre; the area under orchard crops was 52 acres. A small local market exists in the town, but most of the produce is either sent to the Murchison Goldfields, or else shipped to Perth by coasting steamer, whilst supplies of early fruit and tomatoes are forwarded by rail to the Eastern Goldfields, a distance of 661 miles by rail, where satisfactory prices are readily obtained. The Chapman Experimental Farm, which is within 30 miles of Geraldton, has done much to demonstrate to settlers the productive capabilities of this portion of the State, which was at one time supposed to be of but little value for agricultural purposes.

The small coastal township of *Dongara* is situated on the Midland Railway line, at a distance of 263 miles from Perth. It is a small port, at which coasting boats call at regular intervals for loading, and is the town centre of an old and prosperous agricultural area, the "Dongara Flats" being well known as containing some of the richest land to be found in the State. The country is as a rule

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flat, and the soil consists of a heavy loam and clay, as well as ironstone and limestone areas; in some parts, however, where the outcrop comes to the surface, the rises are rocky. The country is admirably adapted for general farming purposes and stock-raising, the natural feed keeping stock in excellent condition. Given proper cultivation, lucerne should do well on these flats, and there should be a splendid future for the dairying industry. The timber, which has been mostly cleared, consists of white gum, York gum, and wattles, and can be cleared, where still necessary, at a cost of £2 to £3 per acre. The rainfall is fair, varying from 13 to 38 inches per annum. The total area under crop in this district for 1903 was 7,012 acres; the average yield of wheat being 11·7 bushels per acre; of oats 16·4 bushels per acre; whilst potatoes yielded 1·6 tons per acre; the area planted as orchard was 25 acres. Water can generally be obtained from springs, or by sinking to a shallow depth.

A flour mill has been established at Dongara, and a local market therefore exists for wheat. A small market is also available at Geraldton, distant by rail 43 miles; but the natural outlet for the produce of this district is the Murchison Goldfield, the furthest centre of which, Nannine, can be reached by rail *via* Mullewa Junction by a train journey of 337 miles. A certain amount of produce is also sent to Perth and the Eastern Goldfields. The train service consists of one train a-day each way to Perth and Geraldton, while steamers call at the port as occasion demands.

The rich *Greenough Flats* are situated on the banks of the Greenough river, within 12 miles of Geraldton, the nearest station being Walkaway, 19 miles from Geraldton, where the Midland Railway Company's line junctions with that of the Government. The flats are somewhat similar to those at Dongara, but larger in area, and contain some splendid cereal country, which, however, has been in private hands for many years. The district is eminently suited both to wheat-growing and stock-raising. The rainfall is good, the average being about 20 inches per annum. The ground now is mostly cleared, but what timber is left consists of white gum, York gum, and wattle. The total area under crop for the year 1903 was 12,902 acres; the yield of wheat being 9·8 bushels per acre, of oats 12·9 bushels per acre; whilst potatoes yielded 2·3 tons per acre; the area under fruit trees and vines was 39 acres. A flour mill is situated on these flats, and wheat can be sold locally. Other produce is usually sent either to Geraldton by rail or road, to the Murchison Goldfields, or to Perth, according to the price obtainable in the different markets. A frequent train service runs between Geraldton and Walkaway, and a daily train connects with Perth as well as with the Murchison Goldfields, Nannine being distant 313 miles.

At *Mingenew*, situated on the Midland Railway line between Perth and Geraldton, and distant 227 miles from Perth and 79

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miles from Geraldton, there is some good, well-grassed grazing land, where cattle do extremely well, and which is also suitable for wheat-growing and sheep-breeding. The country is slightly undulating, and contains some patches of good chocolate loam. The timber consists of jamwood, white and salmon gum, morrell, and wattle, and can be cleared for about £3 per acre; plenty of timber is available, suitable either for fencing or for farm buildings. The rainfall is light, being from 9 to 23 inches per annum. The area under crop for the year 1903 was 1,082 acres; the yield of wheat being 15·3 bushels per acre; and of oats 40·0 bushels per acre; the total area under trees and vines was four acres. A market for produce is available either on the Murchison Goldfields, at Perth, or on the Eastern Goldfields, all of which can be reached by railway. There is a railway service of one train a-day each way, both from Perth and Geraldton.

The Northampton District.

Northampton, formerly noted for its lead and copper mines, is reached by a railway line from Geraldton, of which line it is the terminus, the distance being 34 miles. In the early days large amounts of copper and lead were mined here, but owing to the fall in price of both these minerals, the mining industry is no longer carried on, and attention has been turned to agriculture, for which the district is well suited. The Bowes and Chapman agricultural areas are in close proximity to the town, as well as the Mount Erin estate, which has recently been re-purchased by the Government. The country is undulating, and the soil consists of a light, red loam, with patches of gravel and "sandplain" country. The district is well adapted for orchard work, general farming, and sheep-raising. The good results obtained on the Chapman Experimental Farm, which is in this area, are responsible for the increased settlement which has lately taken place. Although the soil appears to be of a light nature, as much as 20 bushels of wheat have been obtained per acre, whilst oats and barley have also given very satisfactory results. Even the "sandplain" country, hitherto considered worthless, has, with the application of a little fertiliser, been made to produce good payable crops. Some excellent sites exist here and there for the establishment of orchards, as citrus fruits, together with peaches and apricots, thrive well, and ripening early, enable the growers to obtain the top market prices for early fruit. No surface water is available, but water can be obtained almost anywhere by sinking—in some places to a depth of only a few feet. The rainfall for 1904 was 18 inches, but the average for 22 years amounts to 21 inches. The timber consists of jamwood, wattle, York and white gum, and can be cleared at a cost of from £1 to £2 per acre. Plenty of jamwood posts are available for fencing. The total area under crop for 1903 was 3,350 acres; the wheat yield being 11·7 bushels per acre; and that of oats 14·7 bushels per acre; whilst potatoes yielded 1·7 tons per acre; an area of 71 acres was planted out for orchard and

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vineyard purposes. To obtain a market, produce would have to be sent to Geraldton by rail, and thence on either to the Murchison Goldfields or *viâ* Perth, to Kalgoorlie. The fruit and tomatoes from this part being early, are generally first in the market, and obtain good prices. Settlers in the district are always welcome to visit the Experimental Farm, where they can see the work carried out, and obtain from the manager any information they may require with regard to the various crops. Students are also received at the farm for the nominal fee of £2 2s. per annum, for a course of instruction in all kinds of farmwork. A train service of four trains a-week, each way, is provided from Geraldton to Northampton, and there is also a very fair road between the two places.

THE POSSIBILITIES OF COTTON CULTIVATION IN WESTERN AUSTRALIA.

(*By A. Morrison, Government Botanist.*)

The cultivation of cotton for mercantile purposes is successfully carried on in countries situated in latitudes between 36° N. and 36° S.; so that, as regards the amount of solar heat required, all parts of Western Australia may be regarded as possible fields for the purpose. Although the cultivated varieties of the cotton plant have been derived from species growing spontaneously in tropical regions, nevertheless some are profitably grown in warm temperate latitudes, even where the minimum winter temperature falls to freezing point.

Great confusion exists concerning the relationships between the numerous varieties of cotton under cultivation, and also in regard to their derivation from the original species found growing in a natural state; but the great majority are referable to three species of *Gossypium*, namely, *G. arboreum*, *G. barbadense*, and *G. herbaceum*. *Gossypium arboreum* (Tree cotton) is a native of tropical Africa, and is cultivated in Upper Egypt, Arabia, and India. The fibre is pure white, fine and silky, but is produced in comparatively small quantity.

G. barbadense supplies Barbados or Sea-Island cotton, the most valuable kind, its fibre being of greater length than any other variety, and of fine quality. The plant is believed to be indigenous in the islands lying between North and South America, and it is cultivated in the Southern States of North America, in the Mediterranean region, and also in Queensland. It grows to its greatest perfection only near the sea in tropical latitudes, but fails in inland districts, where the daily range of temperature is wider and the atmosphere less humid. The soil most suitable for the plant is a light, fine, sandy loam, containing 4·8 per cent. of clay, and holding about 5 per cent. of moisture. Although it is less productive than some other varieties, and requires more attention in its culture, the superior quality of its cotton nevertheless makes its cultivation

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profitable. The variety *Peruvianum* yields Peruvian, Kidney, or Brasilian cotton.

G. herbaceum is thought by some to have been derived originally from a species found wild in India at the present day. It has been in cultivation in Asiatic countries from very ancient times, and numerous varieties are extensively grown in various parts of the world. The variety *religiosum* supplies Nanking cotton, which has a yellow or tawny colour. The variety *hirsutum* may be of independent American origin, and is now in many forms extensively cultivated in the United States, where it furnishes the Upland or Short-staple cotton. It is better suited to districts in the warm temperate zone, and requires less expenditure in labour than Sea-Island cotton. The best soil for it is a deep friable loam, containing 25·30 per cent. of clay, and maintaining about 10 or 12 per cent. of moisture during the growing season; soils that are suitable for wheat growing may also serve for the cultivation of American cotton.

Ideal conditions for the successful culture of the cotton plant indicate a deep, free, well-drained loamy soil, maintaining a moderate and uniform amount of moisture; frequent light showers without prolonged cloudy weather, till full growth is reached, followed by a long period of hot, dry, sunny weather, while the capsules are ripening. The whole course of growth from germination to maturation extends over about six months, and the industry might be easily carried on in any of the coastal districts of this State, where the rainfall is good. Frosts and sudden changes of temperature are injurious to the young growing plant, and heavy rain during the ripening of the fruits would spoil the cotton for market purposes, but these untoward conditions are absent or avoidable in almost all parts of the State. The suitability of the warmer parts of Australia for the growth of cotton is demonstrated by the presence, in the flora of Northern Australia, of several native species of *Gossypium*, which produce a cotton of greater or less value, as well as by the successful growth, by the South Australian Government, of the ordinary cultivated varieties, some of which have escaped and now run wild in the bush. The new variety of cotton plant raised by Dr. Thomatis in Northern Queensland, under the name "Caravonica," is very prolific, and produces a fibre regarded by experts as being among the best grown. The Australian climate produces a fine quality of sheep's wool, and that of Western Australia might develop characteristics giving special value to cotton produced within its boundaries, such as fineness of fibre, and also purity of colour, just as it is responsible for an unusual brilliancy of colour in the native flowers. In Egypt, where the climate presents features similar to that of this State, the cotton produced is of superior quality, and classed next to the Sea-Island variety for length and fineness of fibre.

As in the case of other cultivated plants, the crop of cotton is improved by the aid of drainage or irrigation, by manuring or fallowing, and it may be made one of the series planted in a system

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of rotation of crops. In cotton-growing the labour required is of a simple and easy kind, and it might well be undertaken by settlers as one of the small industries in their scheme of mixed farming, with a good prospect of finding it profitable. Cotton picking as a kind of labour should present no greater difficulty than the gathering of raspberries or the picking of hops, and might be done in some districts by boys and girls, or in others by aboriginals. The preparation of the crop for the market is easy, the cotton being freed expeditiously from the seeds with the aid of machinery, then packed in bales; while the seeds themselves are valuable for the oil and oil-cake they supply, and the dry stalks of the old cotton plants may be put to use as firewood.

POSSIBILITIES OF TROPICAL AGRICULTURE IN THE NOR'-WEST.

The Beagle Bay Mission Experiments.

(*By Daisy M. Bates.*)

The Trappist Mission at Beagle Bay, which is situated some 1,600 miles due North of Perth, was started about ten years ago, and it may be of interest to the advocates of tropical agriculture to be made aware of the results of the missionaries' labours in the growth of fruits, cereals, etc.

About 75 acres of land surrounding the Mission having been cleared for cultivation; upon this land the experiments were carried out, and with what success will be seen below.

Seeds and plants were obtained from Europe, Singapore, and the Agricultural Department of this State. These were carefully planted, and the results are highly satisfactory.

Bananas, as being the most successful of all the fruits grown, claim first attention. I counted upwards of 8,000 plants and shoots, all the grown plants fruit-bearing. The Abbot informed me that he had 13 varieties of this plant, all in the highest state of excellence, some of the plants being upwards of 15 feet in height. I tasted many of these bananas, the delicate and luscious flavour of most of them being perfectly delicious. The gardens in which they are grown are marked out in spaces about 15 feet apart, and trenched between every two rows. As there are numerous springs in the gardens, a constant stream of water flows through the trenches. In the earlier stages of their growth, vegetables are sown between the rows, but as soon as the plants begin to bear fruit, the space between is left clear.

The trees are very prolific; on one bunch alone Father Martelli counted 150 bananas, and that number, I was told, was by no means unusual. Altogether, banana culture is one of the chief successes at the Mission.

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Fifty-two cocoanut trees had been planted, but as these trees take from eight to ten years to attain maturity, only three were fruit bearing. I had the pleasure of opening the first cocoanut grown at the Mission, and found it an excellent specimen of what promises to eventually become a very lucrative industry. I do not myself think there is sufficient space left between the cocoanut trees, and this may, as they grow up, materially affect the fruit-bearing capacity of some of those planted about six years ago, but at present all the trees are healthy and look most promising.

The date trees, 60 in number, were planted about the same time as the cocoanuts, and as they also take eight or nine years to come to maturity, seven only were then fruit-bearing. I believe that date trees should be planted in groups, as the male and female flowers are developed on separate trees. The date fruit had not come to maturity during my stay at the Mission, though it looked strong and healthy, so I was then doubtful whether it would ever arrive at full fruition, as in the case of a male tree not being present, the female would not be fertilised, and the fruit consequently would not mature, but would drop off without getting thoroughly ripe. I have since heard, however, from the present Superior, that the fruit had duly ripened and was of excellent flavour.

Pineapples were growing successfully, and many of them were ripening at the time of our departure from Beagle Bay.

Of fig trees there were not many growing—about 20—but all were carrying fruit; and there were six young orange trees doing very well.

The castor-oil plant grows abundantly, and Father Martelli, who spent many years in India, states that the seeds obtained at the Mission are equal to the Indian product, so that this oil may some day become an important article of commerce.

The pomegranate trees were flourishing, also the papaw, the fruit of which is most delicious. When green, this fruit can be used as a vegetable for soups, etc.; it is then not unlike the marrow in flavour.

Rock and water melons grow in abundance; the Cape gooseberry thrives wonderfully well; sugar-cane and sorghum are also grown, and are highly successful. A very pleasant drink, which I called "Beagle Bay Beer," is made from the cane, sugar and water being the only other ingredients, making a good thirst-quenching beverage. The sorghum is principally used for horses and poultry feed, but in future it may possibly be grown in sufficient quantity to take the place of rice at times as a food for the natives, the absence of proper machinery for crushing, etc., alone preventing its being more extensively cultivated.

Rice has been sown in the swamp lands, and when practical men take its cultivation in hand, will go far towards making the Mission self-supporting, as the food of the natives consists mainly of rice and pumpkins.

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The specimens of arrowroot which I brought with me from Beagle Bay were pronounced by a Queensland expert to be better than the best grown in that State. The need of machinery for its manufacture is the only reason why it is not more extensively planted, it having been satisfactorily proved that the soil is eminently suited for the growth of this plant.

Tobacco-growing on a more extensive scale than obtains at present will also be undertaken as soon as an expert in its growth and curing arrives from Europe. At present it is grown in small quantities, but has not been manufactured into the finished article, owing, I understand, to the fact that rum is required in some stages of its manufacture, and there were no means of making rum at the Mission.

As regards vegetables, Beagle Bay might be called a Chinaman's paradise. Firstly, I must take the English potatoes, which are as good as any I have eaten in England or Ireland—large, well-developed, fine "floury" potatoes, which will easily find a market in the various towns along the coast, where now, at most of the hotels in the Nor'-West, you are given a Singapore product, misnamed potato, about the size of a marble, waxy and unpalatable.

Large sweet potatoes, "taro" (an excellent kind of vegetable, somewhat resembling the potato, and growing in the garden trenches), pumpkins, cabbages, lettuces, tomatoes, chillies, cucumbers, onions, eschalots, peas, beans (one long variety measuring about a yard in length, not the seven years' bean, I am told, but another), radishes, carrots, and parsnips—all these grow abundantly, and are the best of their kind. Many of the pearling boats come regularly into Beagle Bay in order to obtain a supply of these vegetables.

The district is well-timbered, cajeput being the principal variety. This tree resists to a greater extent than any other (not excepting jarrah) the ravages of the white ant, and has been extensively used in the Monastery buildings. Eucalyptus, acacia, banksia, paper bark, ti-tree, and a tree the natives call "kurra-burra," which has large seed-pods, the seeds rivalling almonds in flavour—all these trees grow in the district. Occasionally, but not often, a "willy-willy" visits the Mission; but the country being so well and thickly timbered, the storms usually experienced are neither frequent nor destructive.

At Disaster Bay the monks have planted some bamboos of an Indian species; those I saw growing were from 12 to 15 feet in height.

Some seeds of the *Kicksia Africana*, a species of rubber tree, were sent to the Mission for experimental purposes, by the Agricultural Department, but I did not hear of their having been planted, nor of their ever having been received. They may have been lost in transit, or they may have been received just at the time some of the monks were leaving for Europe, when those who filled their places probably overlooked the packet. An experiment with any species

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of *Ficus elasticus* is, however, well worth trying, in view of the fact that, owing to the reckless destruction of rubber-producing trees in their native homes, rubber is yearly becoming more scarce and valuable, at a time when an unprecedented use is being made of it for the wheel tyres of bicycles, motor cars, carriages, etc.

There are about a thousand head of cattle on the Mission run, and I noticed that those occupying the marsh lands were fatter and much better looking than the herd that keep to the "pindan," or bush lying between Beagle Bay and Disaster Bay, within the Mission reserve. The working bullocks would take a prize at any show in the States.

The country does not seem at all suitable for sheep, all those on the Mission land being very poor and weedy, and not averaging above 30lbs. in weight, and with very scanty wool. As there is plenty of food and water, it must follow that either the quality of the grass is unsuitable for sheep, or the conditions of the climate do not admit of sheep thriving in these parts.

Horses do not seem to fare well either, as many losses have been sustained owing to the prevalence of a poison plant, which causes much mortality among them. The monks have now planted several acres of couch grass for horse paddocks, and by this means, it is to be hoped, mitigated the risk. I have been told that the first and succeeding generations of horses born on the place successfully resist the poisonous grasses. and become hardy and strong. Timor ponies seem to thrive best.

A species of wild bee, stingless, and somewhat smaller than the house fly, builds its nest in the piped branches of the whitegum, and collects a most delicious honey, which has a very curious and attractive flavour, but is totally unlike any other wild honey that I have ever eaten. Is is very difficult to find the nests of these little insects, the opening being so small. The manner in which the natives discover them is by looking on the ground underneath the tree for any dead bees that may have fallen out of the nest, and as the bees are very very small, the native has to kneel down and look closely among the grass and dead leaves until he finds what he is seeking, when the branch containing the nest is cut down, and the honey, bees, and wax eaten *kolus bolus*.

One of the greatest blessings in and around Beagle Bay is the abundance of the water supply. There are no watercourses, but numerous springs are to be found. Between the two bays, Beagle and Disaster, the country is almost level, only dotted here and there with curious little mounds covered with screw-palms and acacia. These mounds are really springs, where the water, having forced its way from some subterranean source, has ultimately found an outlet. I did not find any of these springs further than 15 miles inland from the coast. Many of the springs have been opened out, and troughs fixed around them for the use of the stock. The water in them is constantly in motion, and always keeps a certain level, so, naturally when the troughs are placed in a position slightly below the level of the

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wells, the water flows into them, and they are always kept filled by the overflow from the well. In this way the water in the trenches is kept continually in motion, and the banana and other gardens are "supplied with fresh water daily." There are, I may mention, including the "banana nursery," four gardens attached to the Monastery.

It will be seen from the above account of the productive qualities of Beagle Bay what facilities and inducements there are for enterprising settlers to try their fortune in that part of the Nor'-West. That the climate is trying, I admit; still, it is livable. I was up there during some of the worst months—August to the end of November—and in the latter part of my stay the thermometer at times registered 110° Fah. in the shade; hot winds also occasionally aggravated the heat, whilst on some days again there was not a breath of wind. In spite of these temporary inconveniences, however, I was always able to endure the heat and pursue my daily work.

3.—LIVE STOCK.

(By Alex. Crawford, Acting Director of Agriculture.)

The opportunities offering in connection with the pastoral industry in Western Australia are very considerable, as up to the present time comparatively little has been done towards its development as one of the principal of the numerous and vast resources of the State. A large extent of grazing land has been taken up in the Kimberley, Ashburton, Gascoyne, Esperance, and Eucla districts, but as yet the holdings are invariably understocked. This latter remark more particularly applies to the Kimberley Division, from whence the principal local cattle supplies are at present chiefly drawn; and until more breeding cattle are introduced, with a view to adjusting the quantity of stock to the carrying capacity of the country, so long will these districts, with their immense possibilities, remain in an undeveloped state. The greater portion of the Kimberley country consists of strong, highly productive soils, and the heavy tropical rains, combined with the warm climatic conditions, induce a most abundant growth of pasture. Through being under-stocked, and consequently not held in check, these grasses eventually become coarse, rank, and unfit for cattle; but if the Kimberley country carried its full capacity of stock, a sweeter and more succulent growth of pasture would naturally obtain, and the industry generally would be materially benefited. The cattle industry is rapidly advancing in importance, but there is still ample scope for the further investment of capital. This is clearly demonstrated by the fact that in the year 1903 more than £225,000 was paid away to the Eastern States to supplement the local meat supply. In the

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Blood Stallions.

Ayrshire Cattle.

ROYAL AGRICULTURAL SHOW GROUND, CLAREMONT.

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following table the figures relating to animals imported speak for themselves:—

		Value £
Cattle	12,214	118,580
Sheep	89,785	104,454
Pigs	1,198	2,106
	Total	£225,140

An effort has been made by Kimberley cattle-breeders to secure a greater portion of the local trade, but the prices offering for marketable beef up to the present have been so tempting that anything, whether suitable for slaughter or not, has hitherto gone to the butcher, and thus, unfortunately, the increased stocking of the runs, which is so urgently just now required, has been prevented.

The local demand for live stock of all descriptions being so strong, there is, as would be expected, practically no export trade, but the appended tabulated statement indicates what little does exist in this connection:—

Return showing the Number and Value of Exports of certain Live Stock, 1894–1903.

Year.	Horses.		Horned Cattle.		Sheep.		Pigs.		Camels.	
	No.	£	No.	£	No.	£	No.	£	No.	£
1894 ...	5	285	...	...	1,300	520	...	...	...	...
1895 ...	22	958	...	...	...	...	...	...	1	50
1896 ...	36	360	...	...	1,004	364	...	...	...	...
1897 ...	90	2,047	...	...	1,794	1,188	...	...	200	6,000
1898 ...	74	1,947	172	1,102	300	105	3	26	502	15,060
1899 ...	47	3,012	216	1,239	1,133	470	15	14	3	105
1900 ...	443	9,907	3	18	1,628	1,039	25	29	189	3,780
1901 ...	508	10,025	1	10	3,028	1,954	7	7	...	...
1902 ...	86	4,885	3,612	10,836	3,683	2,328	...	...	...	...
1903 ...	21	3,165	...	...	100	65	...	...	84	2,000

It must be noted that these figures include, in certain cases, previously imported animals. For instance, of the 21 horses exported during 1903, no less than 13 had been bred outside the State, and those the most valuable ones, their aggregate value being £3,020. And here it must be borne in mind that the figures, both of import and export, include the value of the race-horses fulfilling their interstate engagements.

The country most suitable for sheep lies South-West of the Kimberley District and extends, following the contour of the coast-line to the South-Eastern extremity, over all that portion of the country where the food and water supply is sufficient for the purpose required. Yet over this vast stretch of territory there were in 1903 only 2,600,633 head of sheep, the returns, however, showing on the whole a progressive movement when compared with

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the statistics of previous years. But a better comparison can be made from the following figures:—

Return showing Number of Live Stock in the State from 1894 to 1903.

Year.	Horses.	Cattle.	Sheep.	Pigs.	Camels.	Goats.	Mules and Donkeys.
1894 ...	50,001	187,214	2,132,311	28,396	2,347	4,050	131
1895 ...	58,506	200,091	2,295,832	27,015	3,456	4,894	64
1896 ...	57,527	199,793	2,248,976	31,154	3,984	4,027	104
1897 ...	62,222	244,971	2,210,742	31,809	3,072	4,229	219
1898 ...	63,604	269,947	2,251,548	39,433	3,197	5,215	209
1899 ...	65,920	297,075	2,282,306	55,953	2,571	5,987	218
1900 ...	68,253	338,590	2,434,311	61,740	3,246	7,220	332
1901 ...	73,710	398,547	2,625,855	61,052	2,596	8,424	361
1902 ..	80,158	437,136	2,704,880	52,883	1,519	11,522	505
1903 ...	82,747	497,617	2,600,633	50,209	2,031	14,120	600

It will be seen that during the decade, 1894-1903, there were increases in horses, cattle, sheep, and pigs, respectively, of 32,746; 310,403; 468,322, and 21,813.

The distribution of Live Stock within the Magisterial Districts is as follows:—

Number of Live Stock in each Magisterial District of Western Australia on 31st December, 1903.

Magisterial Districts.	Horses.	Cattle.	Sheep.	Pigs.	Camels.	Goats.	Mules and Donkeys.
SOUTH-WESTERN PORTION—	No.	No.	No.	No.	No.	No.	No.
Northampton	2,190	9,031	91,590	453	...	246	1
Victoria	4,604	14,938	124,298	5,340	5	725	5
Swan	5,503	12,712	49,890	6,464	...	219	...
Northam	5,651	3,405	114,293	7,627	6	99	1
York	4,162	2,384	145,463	6,628	1	55	1
Perth	3,991	5,098	779	2,602	...	152	1
Fremantle	2,048	1,979	1,917	1,533	...	62	...
Murray	1,970	3,912	13,753	1,605	...	316	..
Collie	357	236	582	141	...	6	...
Wellington	3,502	9,315	33,357	1,594	2	54	4
Williams	2,294	1,425	49,322	1,747	...	24	...
Katanning	5,820	2,596	115,890	2,782	1	94	...
Blackwood	2,393	7,805	52,708	1,209	...	21	...
Sussex	2,048	6,532	1,344	613	...	120	3
Plantagenet	1,797	2,804	50,098	1,041	...	51	2
Total, S.W. Portion ...	48,330	84,172	845,284	41,379	15	2,244	22

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Jersey Cattle, Clackline.

Pasture Lands, Gingin.

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Number of Live Stock in each Magisterial District of Western Australia on 31st December, 1903—continued.

Magisterial Districts.	Horses.	Cattle.	Sheep.	Pigs.	Camels.	Goats.	Mules and Donkeys.
NORTHERN AND NORTH-WESTERN PORTION—							
East Kimberley	512	10,018	...	129	...	897	...
Kimberley Goldfields ...	3,667	150,228	762	82	1	1,889	18
West Kimberley	1,626	120,441	320,751	48	2	717	36
Broome	478	14,712	1,129	264	...	462	...
Pilbara	4,274	34,852	205,880	831	127	1,200	72
Roebourne	3,813	13,691	261,904	122	...	406	1
Peak Hill	922	9,056	21,749	231	136	135	49
Ashburton	2,988	7,853	226,804	156	80	168	...
Gascoyne	3,568	27,815	420,530	108	17	1,817	7
Total, N. and N.W. Portion	21,846	388,661	1,459,509	1,971	363	7,638	183
CENTRAL AND SOUTHERN PORTION—							
Murchison	2,233	6,783	39,200	802	326	587	6
East Murchison	1,488	3,024	11,514	260	252	115	10
Yalgoo	1,831	6,791	141,602	109	4	197	21
Mt. Margaret	1,508	2,987	19,548	1,150	408	218	233
North Coolgardie	884	1,595	3,655	578	62	490	51
North-East Coolgardie ...	373	169	60	72	...	75	7
Broad Arrow	260	41	8	128	1	259	5
East Coolgardie	1,542	741	5,440	2,870	10	437	...
Coolgardie	857	645	2,714	498	507	206	3
Yilgarn	238	181	132	89	...	1,408	8
Dundas	427	438	13,355	101	2	167	16
Esperance	701	1,358	56,553	109	78	68	9
Phillips River	227	31	2,059	93	3	11	9
Total, C. and S. Portion	12,569	24,784	295,840	6,859	1,653	4,238	378
Grand Total, Western Australia	82,747	497,617	2,600,633	50,209	2,031	14,120	600

An examination of the figures relating to the importation of live stock into Western Australia affords ample evidence of the deficiency of the local supply. Horses were imported during 1903 to the value of £38,755; cattle to the value of £118,580; sheep to the value of £104,454, and pigs to the value of £2,106. The corresponding figures for the whole of the decade ended 31st December, 1903, were £380,638; £1,006,466; £676,445, and £53,156.

Reference to the number of people engaged in the pastoral industry in Western Australia has already been made in the chapter on "Agriculture."

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All stock imported into Western Australia from the Australian States and New Zealand must be accompanied by the certificate of a qualified Government inspector, and the declaration of the owner, or breeder, that they have been free from disease, and free from contact with diseased cattle, for the three months preceding shipment. In addition to these provisions, cattle (except for slaughter) undergo 30 days' quarantine, and camels 40 days, on arrival. Stock may be introduced by land from South Australia, by the road which crosses the border about eight miles North-East of Eucla, or in that portion of the Kimberley District east of the 127th meridian of longitude, at the following places:—Cockatoo Springs, Newry, or at the point on the border line of the two States where the Negri River crosses. Cattle so introduced must be accompanied by a declaration of health, made by the owner or breeder, immediately prior to their leaving for Western Australia. Quarantine stations for stock are temporarily declared by the Governor in Council as required. The importation of pigs from the Eastern States is prohibited.

Pigs, Poultry, and Bees.

For a more general recognition of the importance of and special attention to what may be termed the minor industries of the farm, such as pig-keeping, bee-keeping, and poultry-raising, this State offers unusual inducements, as the prices to be obtained in connection with these industries are such as would prove most remunerative. It may be said that practically speaking there is no ham, bacon, or lard produced in the State, almost all the pigs killed being used for pork. The amount of money sent out of this State for pig products is considerably over £100,000 annually. The demand for pork keeps on increasing to such an extent that there are no pigs to spare for curing, as even the pork supply scarcely equals the demand. Pig-farming, combined with poultry-farming, is generally recognised as one of the most remunerative industries at the present time. It has also this advantage, that only a small area of land is necessary to carry it on, and the work is not heavy or laborious. To those who thoroughly understand poultry-breeding, this State offers unequalled advantages, as now enormous quantities of eggs are imported yearly, and many parts of the land could not be equalled for rearing poultry. Turkeys cost almost nothing to keep if they have the free run of timber or scrub lands, and they will rear their chicks, if not interfered with, far more successfully than they would if given the closest attention. On some farms as many as 200 young turkeys are bred every year, the birds being allowed the free range of the bush, and to rear their young themselves in a practically wild state.

So far as bee-keeping is concerned, in suitable districts the average yields per hive are extremely satisfactory; an average of over 300lbs. per hive has been obtained in one apiary of over 100 hives, and over 600lbs. has been obtained from a single hive in one season. The quality of the honey obtained from the red gum and banksia trees, which are the chief sources of supply, is very high,

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the honey having a flavour resembling the clover honey of the old country. For some years the wax moth almost decimated the bees in the State; but this has been overcome by the general introduction of the Ligurian bees, and there is nothing more to be feared from that source now.

Bee-farming is carried on almost exclusively in the South-Western portion of the State. The number of hives in frames at the end of 1903, for the whole of Western Australia, was 5,943; those in boxes numbered 1,166. From the former 145,068lbs. of honey were obtained, and from the latter 34,208lbs. A quantity of 4,533lbs. of beeswax was gathered. The production of honey in 1896 was 82,255lbs., and in 1902 had risen to 262,963lbs., whilst in 1903 a total yield of 179,271lbs. was obtained.

The numbers of the principal kinds of poultry in the State in the years 1896 to 1903 are shown below:—

Year.	Poultry.			
	Fowls.	Ducks.	Geese.	Turkeys.
	No.	No.	No.	No.
1896	181,430	16,821	2,099	3,562
1897	230,843	23,305	2,225	3,619
1898	257,018	32,221	2,421	4,723
1899	304,794	36,724	2,523	6,216
1900	319,383	41,112	3,441	9,071
1901	318,816	39,552	3,586	11,778
1902	305,015	30,780	3,821	14,021
1903	338,124	36,283	4,102	18,287

It must, however, be remembered that the returns are compiled from the Industrial Statistics Schedules, and many owners of poultry in towns and villages are not compelled by the Act to supply these forms. The figures, therefore, fall considerably short of the actual number of poultry in the State. It is, perhaps, superfluous to mention that by far the largest number of poultry are found in the South-Western Division.

The increase in the supply of poultry in the State, although a substantial one during the period of eight years, is not commensurate with the demand, as is shown by the imports of poultry, both alive and dead, which amounted to £3,569 in 1903, the total value of poultry imported for the seven years ended 31st December, 1903, being £21,414. These figures speak for themselves.

The Angora Goat and the possibility of the Mohair Industry in Western Australia.

(By F. L. Faulkner, manager of the Government Experimental Farm at Narrogin.)

The Angora goat industry has at last made a slight stir in Western Australia, but up to the present, unfortunately, the number of pure Angoras in this State is very small.

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Last year (1904) the Agricultural Department secured about 120 good pure-bred flock goats, and after establishing small flocks at the Experimental Farms at Narrogin and the Chapman, the balance of about 75 goats (mostly bucks), was distributed amongst various applicants throughout the State.

Of course, it is extremely probable that many of these bucks will be thereby allowed to run amongst a flock of common goats, and no further attempt made to establish a good grade flock, but on the other hand many of those who have been fortunate enough to obtain the pure bucks have a few pure does, whilst others will find their way to owners of flocks of common goats who are starting grade flocks.

This system of creating a grade flock, although not of course equal to starting from the pure animal on both sides, is under the circumstances a good one, giving results that are astonishing, and if carefully conducted on right lines produces in time a flock undistinguishable from the pure breed and having the additional advantage of being more hardy and prolific.

The Angora doe is, unfortunately, not conveniently obtainable, except at very long prices, and even then only in very limited numbers, so that the only alternative, if it is desired to start on a fairly large scale, is to start grade flocks. The grade goat at the second cross often gives fairly good marketable hair; whilst at the fourth cross the animal is almost undistinguishable from the pure bred. So great is the prepotency of the pure buck that even in the first cross the kids are almost invariably all pure white, and, indeed, in some cases the hair is fairly good.

That the Angora goat is well suited to thrive under Western Australian conditions cannot be doubted, and indeed has been already proved, as they are now to be found—although, it must be confessed, on at present but a very small scale—from east to west and from north to south of the inhabited portion of the State. Those districts having a light rainfall, as for instance in the vicinity of the Eastern Goldfields, are, it would appear, better suited to the requirements of the Angora than the South-Western and the Southern Districts where the rainfall is heavier, for although this goat can endure almost any variation of temperature, it does not thrive so well where the rainfall is continuous and excessive, and where the soil is continuously moist.

The typical goat country is one were the climate is inclined to be dry and warm and the soil undulating or hilly, indeed the more rugged and rocky the better, so long as there is plenty of thicket, shrub, or tree-suckers from which the goats can pick a living. Western Australia can certainly boast of a very large extent of country that could be included under the above description, and even if the country is not all rugged and hilly, it is mostly undulating, and sufficiently rocky to keep the feet of the goats short and well trimmed back; and although as regards the vegetation there is a large proportion that the goats possibly may not do very well upon,

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there is still plenty of very nutritious scrub and bush which will be eaten readily in preference to the grass. This is particularly noticeable at the Narrogin Experimental Farm, where the goats confine themselves almost exclusively to the stink-bush thickets, and are doing remarkably well. Much has been said of the wonderful ability of the Angora as a scrub-clearer, but practical experience teaches that if the goats are to thrive and to give profitable clips of mohair too much of this kind of work must not be attempted. It cannot be denied that, if they are compelled to do so, they will exist on anything down to eucalypt suckers and dead sticks; but they certainly will not be profitable if kept this way.

In spite of its extreme hardiness the Angora succumbs as readily as most other animals to the effects of our Western Australian poison plants.* If anything, indeed, it takes poison even more readily than sheep do, owing no doubt to its browsing habits, since a sheep, if it can get good grass, will forsake the scrub.

Where the tendency of the climate is to excessive wet, the Angora is liable to become infested with lice; but they are readily got rid of by dipping in any of the well-known sheep washes.

On land that is without rough hills or stones the feet of the goat are liable to become long and twisted during the wet weather, and should therefore be trimmed occasionally.

The Angora goats are, comparatively speaking, more easily fenced in than the common goat is, a 3ft. netting with a wire above usually keeping them safely; indeed, as long as they have plenty to eat and are satisfied, an ordinary six-wire fence suffices.

When disturbed they herd together like a flock of sheep, and if kept handled are fairly easy to yard. Regarding the future possibilities of a market for the produce of the Angora, it may at once be said that they look extremely bright. The world's demand for mohair of a good quality is now larger than the supply, the price being from 1s. to 1s. 3d. per pound, while even inferior half-bred hair is bringing from 6d. to 8d.

Mohair goods are noted for their wonderful wearing properties and almost indestructible lustre, and as they are rapidly gaining popularity, there is every reason to recognise that, as their manufacture develops, the demand for hair will increase proportionately. In any case there need be no fear of a glutted market for a long time to come.

The mutton of the Angora, also, is quite equal to the best mutton, and altogether devoid of the aroma which people usually associate with that of common goats. The report of the Queensland Statistician for 1903 states that Angora wethers barely two years old averaged 40lbs. each, dressed.

At the Experimental Farm, Narrogin, there are now a few kids five months old that should dress up to 25lbs. each.

The skin of the Angora, again, is a valuable asset; the pelt is much tougher and stronger than that of the sheep, and the

* The members of the Acclimatisation Committee (*vide* page 140) apparently hold a different opinion on this point.—ED. YEAR BOOK.

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beautiful snow-white lustrous hair makes the skins, when well tanned, particularly adapted for working up into mats and hearth-rugs. A good skin should be worth anything up to 8s. or 9s.

At present much is being said and written about the quality of mohair, and buyers appear all to be desirous of getting a hair free from kemps, of long staple, and fine quality. Kemps, of course, are of no benefit to either the grower or the manufacturer, and so should be bred out as quickly as possible.

The question of length of staple is one, however, that may be looked at in two ways, as is also the one of fineness of fibre.

With good goats a long staple is not hard to obtain if the goats are shorn only once a year, but by shearing twice a year growers find that they get a much heavier total clip, although, of course, the hair is shorter, whilst the difference in price for the long hair does not compensate for the difference in weight of the short hair, in many cases.

Experience has also shown that in parts of Western Australia, before the weather becomes sufficiently warm to make shearing safe, much of the hair is lost by shearing only the once—many of the nannies bearing kids losing the whole of it. This, however, is the experience of only one season, and the goats, when they become acclimatised, will probably hold their fleece better.

As regards the quality of mohair to grow, from the manufacturer's standpoint an endeavour should be made to produce hair of as fine a quality as possible.

From the grower's point of view, however, this holds good only to a certain extent. It would be well if growers were put on the alert and would not attempt to grow hair of too fine a quality, or as a natural consequence a small, delicately constitutioned animal, with a very light clip, will be the result; whereas a good quality, strong-fibred, long, lustrous hair invariably grows on a large robust animal, which gives a heavy clip and, when the animal is no longer required for breeding or the production of mohair, furnishes a good carcase of meat. At present it is to be regretted that most of the strains of Angora blood in this State are from the same origin, and the introduction of new blood will therefore shortly be required. Facilities for imports are, however, increasing, and as there are now a fair number of does in the State, the introduction of fresh bucks will be all that is necessary.

It is certainly to be hoped that those now venturing on this new industry will be able to carefully follow it up to a successful issue, as so many others are doing in the United States, in South Africa, and also in other parts of Australia.

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Lake Cave, exterior view.

Kiosk, Mammoth Cave.

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4.—BEAUTY SPOTS AND HOLIDAY RESORTS.

The Upper Murray.

Among the holiday resorts of the State, the Valley of the Upper Murray promises to shortly become very popular, the pure mountain air of the ranges, in combination with a charming variety of river scenery, making it an ideal place for summer excursions.

In view of the probability of this district becoming a summer resort, and being required at some future day for subdivision into building sites upon which country residences may be established, the Government has reserved the frontages to the river.

Mandurah.

Mandurah, on Peel's Inlet, about 13 miles west of Pinjarra, is one of the most popular summer excursion places, offering, as it does, the attractions of boating, fishing, bathing, shooting, picnicing, and sea-air within a reasonable distance of the metropolis. There is excellent accommodation in the town for visitors, and charming drives may be had in various directions to favourite trysting places. Anglers can get the best of sport with kingfisher, schnapper, bream, etc., and large flocks of wild duck frequent the more southern portions of the Inlet. There is a fish-canning industry at Mandurah, the delicious sea mullet being the chief take of the nets. Arriving by rail at Pinjarra, excursionists find coaches awaiting them. The drive across country to the sea is an agreeable one, the route for the most part lying through picturesque country. From Christmas to Easter is the busiest season for the entertainment of visitors at Mandurah.

Bunbury.

Bunbury, 115 miles south of Perth, situated at Koombanah Bay on the Indian Ocean, and one of the chief ports of the State, is held in the highest regard as a pleasant holiday resort. The town has grown greatly during the last few years, and is still rapidly expanding. The climate is almost perfect, the rainfall during the winter months being abundant, while the summer heat is tempered by daily sea-breezes. The temperate climate, commodious sea-baths, and the opportunities afforded for boating and fishing, add to its attractions. There are several good hotels and boarding-houses in the town. The increase of trade at Bunbury has tended to a rapid general improvement. Electric light and a telephone service are available. Visitors flock to Bunbury in vacation times, special trains having to be run on holidays.

Busselton (or the Vasse).

Busselton lies south of Bunbury, at a distance of 149 miles from Perth, and is a pretty, quiet, reposeful little seaside town, that has

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recently come into special prominence as the starting place for a visit to the wonderful Yallingup Caves. Situated in Geographe Bay, on the shores of the Indian Ocean, and in a cool latitude, Busselton, which is picturesquely laid out, with peppermint tree shaded streets, has always been popular among those to whom time and distance are not the first consideration in choosing where to go for a holiday. Excursionists can travel by way of Busselton, and see the Caves in a leisurely excursion down, to the world-renowned Cape Leeuwin, thence drive or ride to the banks of the Blackwood River at Augusta to fish and shoot over Hardy's Inlet, or they can sail to Flinder's Bay.

Busselton was originally named *The Vasse*, the estuary on which it is situated having received that name from the French during their expedition under Baudin, 1801-3, after a sailor, called *Vasse*, who, during the rescue of a landing party, in stormy weather, was lost in the breakers and not seen again. It would appear from native reports that Vasse was subsequently kindly treated and fed by the Aborigines, but that he gradually got very thin, and eventually died, probably from anxiety, exposure, and poor diet.

THE YALLINGUP AND MARGARET RIVER LIMESTONE CAVES

(*By Mr. C. Erskine May.*)

The beautiful caves of Western Australia, which have recently attracted so much attention, are situated in the South-Western portion of the State, between Cape Naturaliste and the Leeuwin, in an undulating limestone country which skirts the coast-line at a distance varying from half-a-mile to three miles. This cave country, extending as it does from north to south for some 50 miles, is honeycombed with subterranean galleries, displaying marvellous and beautiful geological features which, according to many persons well qualified to express an opinion, are unrivalled for their beauty, picturesqueness, and infinite variety in the Southern Hemisphere, if not, indeed, in the world.

Early History.

Strange as it doubtless appears, though the existence of these Caves has been known of for the last 20 years, the extraordinary beauties of this underground wonderland were not brought into prominence until very recently. A few of the residents of the locality—notably Mrs. John Brockman—were, however, persistent in their endeavours to induce the Government of the day to protect from acts of vandalism the brilliant and fantastic handiwork of Nature that lay hidden in their darksome recesses; and on the urgent representations of Mrs. Brockman, the Honourable George Throssell, the then Minister for Lands, caused an exhaustive exploration to be made, with the result that the Government, recognising the value of this marvellous subterranean labyrinth, immediately took steps to insure its future protection. This

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"The Sentinel," Golgotha Cave.

"Shawls," Crystal Floor, Yallingup.

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action was taken none too soon, for it was found that many caves in the most southerly portion of the district had been irretrievably ruined by evilly-disposed or thoughtless persons. The whole of the district in the vicinity of the caves was, however, at once made a Government Reserve and placed under a Board of Management, by whose efforts these marvellous caverns, once almost inaccessible, have now been rendered easy of access by the opening up of passage-ways, the construction of gradual descents, and of bridges across chasms, and other facilities of a like nature.

The Trip.

The route at present usually taken from Perth to the Caves is by railway to Busselton, a picturesque little seaport town, forming a quiet and delightful retreat in itself. It is the terminus of the South-Western Railway, and its distance from Perth is 149 miles. The road track from Busselton to the Caves, for the first 15 miles, practically skirts the foreshore of Geographe Bay, making an exceedingly pretty drive, which winds in and out amongst an avenue of luxuriant peppermint trees, the view being relieved occasionally by a glimpse of the sea on the one side and the broad sheets of water of the lagoon on the other. Leaving the Bay, a further five miles travel through picturesque forest country is enjoyably traversed, and the first known cave of importance is reached.

Yallingup Cave.

This cave is so named after the pretty little rivulet which winds round the base of the Wardanup Hill. On the south side of Wardanup Hill, and about 250 feet above the stream, is the entrance to the cave, which resembles very much a shaft cut through limestone for about 30 feet. Descending the shaft by the easy means of artificial steps, the first chamber met with is one immediately to the right of the landing; it is spacious and dome-like, the ceiling being beautifully ornamented with thickly studded stalactites of a somewhat massive formation; owing, however, to the proximity of this chamber to the main entrance, and the consequent effects produced by the varying atmospheric influences, the stalactites do not present that brilliant lustre and whiteness noticeable in those found in other chambers. On the left of the entrance is a much smaller chamber, profusely decorated with pure white fragile stalactites, forming a marked contrast to the chamber last described. These two, however, serve only as an introduction to the brilliant marvels of the galleries beyond. Proceeding about 100 feet on a slight decline, a series of chambers is explored, each one having its own special individual wonders and curiosities. Nature has here been particularly generous of her handiwork, the most fragile and fantastic stalactites of every conceivable shape and variety adorning the walls and ceiling of every chamber. Massive stalagmites, 30 feet and more in circumference, rear their alabaster pillars as if to support the arches high above, their grandeur being rendered all the more pronounced by an intermixture of many objects of the most

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delicate and fragile beauty. The walls within the "Chamber of Mysteries" are exuberantly decorated with myriads of stalactites of pure white, forming the most lovely and fantastic shapes resembling coral and tracery and carvings of the most cunning workmanship; the graceful folded shawls, semi-transparent with vandyke edges, and variegated by the chemical action of the water, suggest to the enthusiast the idea that each one is trying to surpass the others in its dazzling radiance.

The exploration of the cave takes at least two hours. The principal chambers in it are now known as "The Entrance," "The Theatre," "The Foot," "The Crystal Floor," "The Crystal Hand," "The Mushrooms," whilst one of its most notable features is "The King's Jewel Case."

The cave is now brilliantly lit up by electricity, some 500 incandescent lamps being so employed. Picturesque handrails, steps, bridges, etc., have been placed wherever necessary for the convenience of visitors, so that at the present time a visit to this cave is most easy and enjoyable. The guide is always in attendance.

Coupons, covering first-class train return to Busselton, coach return to cave, and two days' hotel expenses, and available at any time throughout the year, are issued by the Board, for a three days' trip to this cave, at a total cost of £2 15s., as under:—

(1.) First-class return railway fare to Busselton from either Fremantle or Perth.

(2.) Dinner at hotel in Busselton on arrival. Bed same night, and breakfast next morning.

(3.) Coach to Yallingup (20 miles). One clear day at Cave House, viz.:—Dinner on arrival, tea, and bed same night, and breakfast next morning. Coach back to Busselton, and luncheon at hotel before leaving for Perth.

Should coupon holders wish to extend their stay at the Cave House, they can do so by paying the ruling tariff, namely, 8s. per day.

The return half of the coupon is available any time within fourteen (14) days from date of issue.

The Cave House at Yallingup is a most picturesquely situated house, with broad commanding balconies, from which, between two large hills forming a gorge, an extended view of the Indian Ocean can be obtained. This house is a commodious two-storey modern hotel, with every convenience. Good bathing and fishing can be had. The house is under the management and supervision of the Caves Board.

The distance from Yallingup to the next known cave remarkable for its beauty is about 26 miles, in a southerly direction. One road connects all the caves, and this, it may be mentioned, has been carefully selected so as to pass through magnificent forest

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"Broken Column," Blackboy Hollow Cave.

"Devil's Hand," Wallcliffe Cave

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country, and will, on its completion, form not only a pleasant, but an interesting and instructive drive.

Wallcliffe Cave.

This cave is situated close to the mouth of the Margaret River, and is the oldest known cave that has not been subject to acts of vandalism. It is a rather small cave, but has in several of its chambers remarkably beautiful formations. The stalactites here have become somewhat discoloured, apparently from the dust which has blown in from the entrance, and from the burning of rushes which have been used for lights by explorers. The principal beauties of this cave are the figures which are called "The Poultry and Fruit Show," and a marvellous stalagmite which closely resembles an immense human hand. This cave is now being made accessible more for the sake of old associations than for its intrinsic attractions.

The Blackboy Hollow Cave.

This cave is 1¼ miles south of that at Wallcliffe, and the entrance is similar in some respects to that of the Yallingup, except that the descent by steps is only 18 feet. The chamber opposite to the main entrance contains many massive and fleecy-looking stalactites, and the shelving ceiling is a mass of soft-looking coral-like substance. Immediately on passing through the main entrance one becomes impressed with the awesome vastness of this colossal cave; rocks that in some remote period of the world's early history formed portion of the ceiling, now wrenched from their place, lie a jumbled mass in wild disorder on the floor. The privilege, however, of examining the wonderful collection of freaks of nature which lies beyond more than repays the exertion involved in a scramble over these prostrate giants. Amongst the most remarkable of the wonders met with are "The Broken Column," "The Queen's Crown," "The Organ Pipes," with their crystallised harmonies, and the "Mammoth" stalagmite, on the latter of which the flashlight reveals superb pyrotechnic effects, lighting up the huge mass with the glitter of a thousand diamonds. Most of the stalacites and stalagmites here are of a light amber colour, and form a pleasing contrast to the more delicate icicle-looking marvels hanging from the ceilings and walls. This cave is only partly explored, and much remains to be done before its unknown extent and, as yet, unrevealed treasures can be thoroughly ascertained.

Witchcliffe Cave.

This cave is to be found within about a mile in a south-westerly direction from the Blackboy Hollow, and is situated on the south side of a high limestone ridge fully one hundred feet above the Boojidup Creek, overlooking what is known as "The Devil's Pool." The entrance to the cave is reached by a rather steep climb, but this once accomplished, the remainder of the exploration is particularly easy. The cave itself is probably the smallest of the group, and has, like the one at Wallcliffe, been

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known to residents in the vicinity for many years past; and here, also, the use of burning rushes for exploring its recesses has discoloured the handiwork of Nature. This is greatly to be regretted, as it must have originally been one of especial interest. The floors of the various chambers are practically level, and have the appearance of having been cemented, and the most delicate and nervous person can examine their recesses without exertion or fear. The principal objects of interest are "Lot's Wife"—a large stalagmite standing alone in the centre of the chamber—and numerous fleecy-looking stalactites.

Calgardup Cave.

This cave lies three miles south of the Witchcliffe, its entrance being almost entirely concealed amongst a dense growth of peppermint trees. On entering, after a descent of about one hundred feet, the bed of a subterranean creek is reached, where a narrow little stream, never varying in volume, wanders through its labyrinthine passages without even the murmur of a ripple to break the death-like silence which prevails, animal and insect life being absolutely unknown. Most of the explored chambers in this vast cavern are of indescribable beauty. Within the main dome stalactites innumerable hang from the ceiling and walls like icicles, transparent and pure white. Proceeding thence along a platform five hundred and fifty feet in length, erected to enable visitors to pass dryshod over the damp ground, other chambers are entered and explored. As is the case in the "Blackboy Hollow Cave," some of the stalagmites in this cave are of a light amber colour. Here the chief beauties are: (1.) "The Suspended Dome," which is a dome about eight feet long by five feet in diameter at the rim, suspended in mid-air by a stalactite; this most remarkable piece of Nature's handiwork is mainly of amber colour, but on one side, where it resembles fretwork, the carved portions are pure white, thus showing it to a far greater advantage; (2.) "The Baptismal Font"; (3.) "The Terrace"; and (4.) "The Weeping Rock." In a wing off the main entrance is the crowning glory of the cave, namely, the lovely "Meteoric Shower." Here, down in the earth where the light of the stars has never penetrated, are to be seen thousands upon thousands of slender stalactites of varying lengths, pendent from the ceiling and capped with perfect star-shaped terminals.

The Mammoth Cave.

This cave is three-quarters of a mile south of the Calgardup, and has been given the name of "Mammoth" on account of its majestic proportions and its colossal formations. The entrance to the cave has an Eastern aspect, and, surrounded as it is by an exuberant growth of ferns, roughly hidden amongst the giant trees of Australia—the noble karri—is most charmingly and imposingly situated. Passing through it an enormous dome is entered, which contains many stalactites of the greatest beauty. This portion of the cave is best seen at night-time, as otherwise the daylight, prying through the entrance, detracts considerably from the mysterious

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"Arab's Tent,"
Yallingup.

"Military Rug,"
Yallingup.

"Suspended Table,"
Lake Cave

"Meteoric Shower,"
Calgarup.

Caves of the South-West.

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beauty of the scene within. From the door of the cave to its furthermost recess, wonder after wonder presents itself at almost every step, but throughout the whole of this subterranean fairy-land its bewildering beauties can only be adequately appreciated by those who have had the good fortune to be able to examine for themselves these exquisite specimens of Nature's handiwork. The most prominent features that claim attention are: (1.) "The Eagle's Wings," two huge formations, which have a most striking resemblance to an eagle with slightly raised wings perched on an immense boulder; (2.) "The Tree," a marvellous little stalagmite about three feet in height, with twig-like projections of lateral stalactites growing in a complete circle, the very semblance of a young tree throwing out its branches; (3.) "The Cathedral and Organ Pipes," the latter of which not only resemble an organ in form, but on being struck by the hand fill the cavern with clear, melodious notes of a particularly unique and weird sound; and (4.), last but not least, this cave possesses "The Mammoth Shawl," which, with its artistically-blended colours, hangs gracefully between two walls, with a careless-looking fold in the centre, its edges being most delicately and beautifully scalloped.

The Lake Cave.

This cave is situated within a mile and a-half from the "Mammoth Cave," and is the only one which has as yet been explored of the Nindup Group, a collection of nineteen caves already known to exist, clustered together within a circle of about two miles in radius. The approach to it is through a deep circular hollow, apparently caused by the subsidence of a portion of its roof. The bottom of this hollow, covering several acres, is filled with a dense mass of ferns and shrubs, particularly luxuriant in appearance, interspersed here and there with specimens of the majestic karri, whose towering branches reach slightly above the walls of the hollow. Descending by steps for about 300 feet, the first glimpse of the entrance to the cave is obtained. Before entering, a look upwards reveals the magnificent sight of enormous circular cliffs, in some places, fully 400 feet high, limestone in their formation and of dark appearance, gracefully overhanging, and at one time possibly forming the walls of a chamber of enormous dimensions. Around this hollow may yet be seen the huge pillars supporting the limestone arches of the hall, with their old and discoloured stalactites, which once formed the original entrance to the cave. The door of this cave is so narrow that only one person at a time can enter, and stepping on to a platform 250 feet in length, the visitor walks to the "T" head, where seats have been placed, and here sits awaiting the flash of the magnesium ribbon which reveals a sight of such sublime grandeur that once seen it can never be forgotten. This cavern, which contains one of Nature's greatest masterpieces, is almost a perfect dome, the ceiling and sides of which scintillate with myriads of pointed pendants, the crowning feature, however, being "The Suspended Table," whose dimensions are 15 feet long by 7 feet wide, and about 1in. in thickness. The table is suspended

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about 2 feet above the middle of the glassy waters of the lake from which the cave takes its name, and is attached at either end to the ceiling by a large stalactite, one of which measures fully 8 feet in circumference. By means of the artificial light, the magic beauty of the table and its icicle-like stalactites are brilliantly reflected in the placid water, and the marvellous spectacle, which resembles, more than anything else, the dazzling oriental splendours of a scene from the "Arabian Nights," alone more than repays the tourist for any possible slight inconvenience he may have been subjected to during the journey to the caves. Words alone, however, avail nothing to convey the slightest idea of the magnificence and sublimity of this underground treasure house. Although the grandeur of the Lake Cave will probably create the most lasting impression on the mind, it is almost absolutely impossible for those who have been fortunate enough to see them to compare the beauties of one cave with another, as each has its own distinctive attractions. For a single effect, however, the universal verdict is in favour of the Lake Cave; whilst for diversity of geological formation the Yallingup Cave probably bears the palm, as also for displaying the greatest variety of exquisitely-shaped objects of delicate and fragile beauty. All the caves are thoroughly well ventilated, and well-known medical men of the highest standing in the State have not only expressed the opinion that no constitution can possibly suffer from an exploration of their wonderful and mysterious recesses, but have gone even further, and have stated that the "climate of the caves district is salubrious, and the country is the ideal health resort of Australia."

Coupons.

There is no Government accommodation house at the Margaret River, but the Caves Board have made arrangements with the owners of three very comfortable farm-houses for the accommodation of visitors, namely:—Mrs. Brockman, "Burnside"; Miss Bussell, "Ellensbrook"; Loaring & McLeod, "Walcliffe House." Visitors to the Margaret River Caves will fully appreciate the work the Caves Board have done, and are at present doing, in making these caves more easy of access and more attractive by putting in handrails, steps, stairs, platforms, seats, and pathways, also a kiosk outside the Mammoth Cave for visitors to lunch in. The guide is always in attendance.

Coupons are issued by the Board at a charge of £4, available on any day throughout the year, for a four days' trip to these caves, covering first-class train return to Busselton, coach return to caves, and three days' hotel expenses as under:—

(1.) First-class return railway fare to Busselton from either Fremantle or Perth.

(2.) Dinner at hotel on arrival. Bed same night and breakfast next morning; also luncheon in Busselton on day of returning to Perth, any day within fourteen (14) days from date of issue of the coupon.

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"Eagle's Wings," Mammoth Cave.

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"Weeping Rock," Blackboy Hollow Cave.

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(3.) Coach return from Busselton to Margaret River.

(4.) Two days' expenses at Margaret River, viz.:—Luncheon in bush. Dinner on arrival, and bed same night; breakfast, luncheon, dinner, and bed next day; breakfast on the following morning.

(5.) Coach to and from caves visited during the currency of the coupon.

Should holders of coupons desire to extend their stay, they can do so by paying their own living expenses during such extension, the tariff being 7s. per day or £2 2s. per week.

The return coach and rail is available for fourteen (14) days from date of issue of coupon.

Coupons and all further information can be obtained from the Secretary of the Caves Board, 5 South British Chambers, Barrack Street, Perth.

Conclusion.

The caves have been reserved for the use of the public. An excellent road has been made from Busselton to Yallingup. The coast line *en route* is most picturesque, and its numerous little bays abound in fish, so that the angler can enjoy himself to his heart's content. The excursionist will always find something of interest, the district possessing almost every *desideratum* for a perfect holiday. The South-West of Australia will only have to become better known to form one of the greatest tourist resorts in the Southern hemisphere, if not in the whole world. The district not only offers pleasure and delight to sightseers and the hale and hearty, bent on making holiday, but offers a perfect haven of rest and recovery to invalids and convalescents.

Geological Features of the South-West Caves District.

By Edward S. Simpson, B.E., F.C.S., Mineralogist and Assayer to the Geological Survey of Western Australia.

To the visitor to the Caves, travelling from Busselton to Yallingup or the Margaret River, the geological structure of the district, though extremely simple, is not at once apparent, owing to the surface covering of sand and ironstone gravel. On leaving Busselton one passes for some miles over sandy plains, beneath which, at a shallow depth, limestone is revealed in the beds of creeks and swamps. These plains are succeeded, at Dunnsborough on the Yallingup road, and the Lennox River on the Karridale road, by a low range of granitic rocks, masked by a thin coating of sand and ironstone. These in turn give place to limestone as the west coast is approached.

The oldest rock in the country lying between Capes Naturaliste and Leeuwin is the foliated granite or gneiss forming the range running parallel with the coast between the two capes, and at a

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distance never exceeding five miles from it. The same rock appears also at numerous points along the sea shore, notably in the vicinity of Ellensbrook. On the coast it is seen to pass under the series of sand-dunes, calcareous sandstones and limestones, forming the so-called "Coastal Limestone Series," in which the caves are situated. Though the latter rocks are naturally of the greatest interest, a few words about the granite will not be out of place, especially as it has played a somewhat important part in the formation of the caves, by directing the underground flow of water into well-defined channels.

Originally an igneous rock solidified at some depth beneath the surface, the granite was folded and forced up into approximately its present position by shrinkage of the cooling crust of the globe. This force, acting in an east and west direction, set up in the previously massive rock a foliation in an approximately north and south direction, plainly visible at the Swimming Pool on the Margaret River and elsewhere. At the same time several minerals not originally present in the rock were developed in it, by the action of heat and pressure, particularly black mica, which now appears in broad bands in the rock, and red garnet. The latter is so plentiful in places, and so much more indestructible than the other constituents, that at Ellensbrook and elsewhere parts of the sea beach are composed almost wholly of blood-red grains of it. The granite range ultimately resulting from these earth movements occupied the whole of the country between the west half of Geographe Bay and Cape Leeuwin. Between this range and the Darling Range were two large deep bays, which have since been mostly filled in with sand and clay from the hills, and with lime from the shells of marine animals, thus forming the lowland extending inland from Geographe Bay and Flinders Bay.

Within comparatively recent geological ages, the trade winds have piled upon on the top of the granite of the west coast huge quantities of drift sand, composed of fragments of quartz derived from the granite itself, of sea shells left on the beaches by the tides, and, lastly, of myriads of the beautiful microscopic shells of the minute marine animals known to scientists as foraminifera. The proportions in which these different constituents collected have varied considerably in different places, and this has been of considerable influence in the subsequent cave forming, for quartz sand is composed of silica, a substance practically insoluble in rain water, whilst the shells of molluscs and foraminifera are composed of carbonate of lime, a substance comparatively readily soluble in it.

Aided possibly by the pressure of the increasing accumulation of drift sand, the west coast has gradually sunk until the lower portions of the old granite sea coast have disappeared below the waters, and only what were once the higher cliffs remain standing a few feet above the waves. The rain falling on the sand-dunes during the wet season dissolved part of the carbonate of lime out of the shell fragments at the surface, and, sinking into the sand, carried the lime with it until it reached an impervious rock bottom,

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Clustered Stalactites, "Yanchep Cave."

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where it lay until the dry weather set in, and it evaporated off, leaving the lime as a hard cement round the grains of the lower beds of sand. This process has gone on up to the present day, and is still going on, forming those irregular pinnacles of limestone beneath the loose surface sand, which are so common, not only in the caves district, but also in the vicinity of Fremantle. Wherever the shells were most plentiful in the sand, there the proportion of cementing lime was most plentiful also, and, consequently, the resulting rock most compact and strong. It is in such localities that the most beautiful caves are to be looked for. A thin slice of the rock from the surface near the Lake Cave, when examined under the microscope, is seen to be composed of shells of foraminifera, with a few quartz grains cemented by secondary carbonate of lime. Evidences of former vegetation, long since covered up by the sand, are to be seen in the fossil roots abounding in the rock on the sea coast. These are so numerous in places as to give the rock the appearance of coral.

At the same time as the loose sand was being thus consolidated into hard limestone, or softer sandstone, the caves themselves were also beginning to form. The accumulation of sand drift was encroaching on the beds of the streams flowing down from the granite ranges into the sea. The drift was most pronounced in the summer months under the influence of the south-west trade wind, just when the creeks were either dry or else so low as to be powerless to wash away the sand. In this way, one by one, the smaller water-courses were filled in, and, as the sand was cemented into a solid rock, the stream water had to force its way down to the sea by tortuous ways through the most porous parts of it.

The stream water flowing down the granite slopes still contained some of the carbonic acid, by virtue of which the rain was able to dissolve the carbonate of lime of the shells. It also, therefore, dissolved portion of the lime from the sands first met with, carrying this further into the bowels of the earth. There, no doubt, portion of it was re-deposited by the evaporation of the water, but by far the greater part (the water being prevented by the underlying impervious granite from sinking to great depths in the earth) was carried right through the limestone and sand-dunes out into the sea, there to be assimilated by later generations of molluscs and foraminifera.

The continual solution of the rock along the lines of flow of the underground water could have but one result, viz., the formation of irregular tunnels in the lower beds of the limestone, starting, for the most part, at, or close to, the inland junction of the latter with the granite, and terminating on the seaward slope of the limestone hills. As time went on these tunnels were enlarged by two means, first, the solution of the floors and side walls in the running water; second, the breaking down of loose portions of the roof and walls, and the subsequent solution and removal of these fragments. Evidences of the caving in of the roofs are plainly visible to the most casual observer, in all of the caves of this district, and as the

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limestone is comparatively soft it is this process that has been mainly responsible for the formation of the large chambers. Closer inspection will reveal the evidences of the former agency in the ledges projecting from the walls which represent old floor levels. The Suspended Table at the base of the two large hanging stalactites in the Lake Cave is a stalagmite or floor-formation, from beneath which the rock has been dissolved out.

The quartz granules in the limestone, being insoluble in the running water, have either been carried away mechanically by it, or left as a deposit on the lowest floors of the caves, as in the chamber of the Crystal Floor in the Yallingup Cave. More or less intermixed with boulders from the roof, it sometimes closes up the underground channels altogether, as at the intake end of the Lake Cave.

The comparative softness of the rock in the Margaret River District has been the cause of a very unique feature of the caves, viz.:—the pit-like entrances to many of them. In softer portions of the rock the collapse of the roof of the caves has gone on until the surface was reached, thus forming a "roof entrance" in the shape of a more or less circular pit open to the sky, 50 or 200 feet in diameter, with overhanging walls adorned with stalactites. Such pits are to be seen at the entrance to the Lake Cave, Giant's Cave, and the second entrance to the Mammoth Cave, amongst others. The main entrance to the latter cave is a "tunnel entrance" at the intake into the rock of the stream, which has been responsible for the formation of the cave.

Whilst the caves were being thus hollowed out of the hills, Nature was already at work in her own way beautifying them. The material chosen was the carbonate of lime of the limestone, the pigment, the oxide of iron of the same, and the means, the downward soaking rain water charged with carbonic acid. The latter in its downward passage through the porous rock became saturated with lime, and also dissolved varying small quantities of iron oxide. Filtering through into the caves, this highly-charged solution deposited its lime, tinged more or less by the iron, in the form of "stalactites," "shawls," "crystal floors," or "walls," "stalagmites," and "rock snow."

The stalactite is the most common form of formation, and so we shall trace its history first. In the first place we note that stalactites are confined to the roof or the under side of overhanging ledges. The growth of the stalactites took place in two distinct ways: first, by the formation of a slender hollow tube; second, by the subsequent deposition of successive coats of lime on both inside and outside of this tube. Each drop of water charged with lime which hung from the roof evaporated somewhat before it fell to the floor, and, during that evaporation, deposited a thin ring of lime through which the succeeding drop passed, increasing it somewhat in length and thickness ere it too in its turn fell to the ground. In course of time this resulted in the formation of a more or less long hollow tube of lime of uniform diameter equal to that of a

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Grotto in "Yonderup Cave."

Clustered Stalactites, "Crystal Cave."

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drop of water. The water dripping down this tube continually lengthened it, and at the same time kept on depositing lime also on the inside of it until the tube was finally completely filled. The second stage of the growth may have been simultaneous with the first, and consisted of a thickening of the stalactite from the outside by the water trickling over it and depositing lime on it. It is this second process which forms the thick butts of the older stalactites, and also the knobbed and otherwise irregularly-shaped ends. Stalactites in all stages of growth can be seen in almost all the caves. So long as water charged with lime continues to trickle over them they maintain a fresh glistening appearance, but as soon as this supply of water fails through any cause, they become dull on the surface. The surplus water dripping from the stalactites of the roof fell to the floor, and there deposited most of the balance of the lime in the form of a stalagmite or floor growth. This stalagmite grew upwards to meet the stalactite as the latter grew downwards, the final result being a column extending from roof to floor.

"Shawls," which are probably the most beautiful form of cave adornment, invariably form on overhanging sloping walls. There the water soaking through from above did not drop direct to the floor, but trickled down the wall by the nearest route to the floor, leaving a thin deposit of lime in its wake. The continual repetition of this process resulted in the formation of a thin sheet of lime projecting from the wall at right angles to it, and banded in a beautiful succession of tints according as the proportion of iron in the water varied at different stages in the growth of the shawl.

"Crystal floors" or "walls" are confined to more or less gently sloping surfaces over which a considerable and evenly distributed flow of lime-charged water has taken place. The evaporation and loss of carbonic acid experienced by the water in its flow has caused the deposition of the lime in beautiful crystalline sheets over large areas of rock. The Margaret River Caves lack apparently one beautiful form of such deposits in the Jenolan Caves of New South Wales, viz.:—The formation on them of a succession of cup-shaped hollows, one beneath the other, in terraces, each hollow full of crystal clear water, like a small scale model of the famous White Terrace of New Zealand.

On the walls of some caves, where the evaporation has been too rapid for the deposit to assume definite crystalline form, there are large masses of a soft and spongy mass of milk-white calcite for which "Rock-snow" would be an appropriate name. This substance occurs in the Wallcliffe and Mammoth Caves and has been found also in the Imperial Cave at Jenolan.

The rate of growth of the various formations in limestone caverns is a subject of frequent discussion, and is generally assumed to be exceedingly slow. It is evidently dependent upon three factors, viz., the quantity of water penetrating into the cavern, the quantity of lime dissolved in that water, and finally the rate of evaporation

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of the same. These three factors may and do vary very considerably, not only in different districts, but even in different sections of one cave. Hence, therefore, the rate of growth varies largely. At Jenolan the rock is so dense that the amount of water which penetrates into the caves through the roofs and walls is very small, whilst the evaporation, for several reasons, is probably slow. Hence it is not surprising to find that a stalactite there has been ascertained to grow only a fraction of an inch in many years. On the contrary stalactites two and three inches long have formed in a few months in an abandoned mine at Kalgoorlie, where the fissured rock allows of free entrance of lime-charged water, and where the evaporation is very rapid. The conditions prevailing in the South-West would appear to favour for the most part a rapid growth.

In their structure, the South-Western caves of this State differ somewhat considerably from the well-known Jenolan Caves of New South Wales. The first difference to strike the person acquainted with both is that the former are scattered over an enormous area, approximately 60 miles long by one-half to three miles wide, whilst the Jenolan Caves are included in an area of less than one mile long and one-quarter mile wide. The caves at Jenolan are situated one above the other in a narrow ridge of limestone, and have all been hollowed out by the Jenolan River and its tributary, McKeown's Creek. Most of the South-Western Caves are situated at some distance from one another, and have each been formed by a different creek. A final point of distinction is that the South-Western Caves are situated in a comparatively soft foraminiferal limestone of recent age, which has suffered no great disturbance since its formation, whilst the Jenolan Caves are situated in a very compact, flinty coral limestone, in very remote (Devonian) times a coral reef, but since then covered up by other rocks, hardened and finally tilted up into an almost vertical position.

Yanchep Caves.

(*Report by Charles P. Conigrave of the Western Australian Museum and Art Gallery.*)

Lake Yanchep, near which these caves are situated, lies about 35 miles to the north of Perth. It is picturesquely placed in the midst of the hills, and is the resort of large numbers of waterfowl. The fauna of the surrounding country is rich in bird-life, while kangaroos and other marsupials are plentiful. The lake, the water of which is fresh, is fed by numerous permanent springs on its eastern side, evidently issuing from reservoirs in the higher lands.

The country in the vicinity consists of a series of hills running parallel with the coast, which is four miles distant. These hills are formed of limestone of the Pleistocene age, and in them numerous openings of varied forms occur, sometimes as rounded or fissure-like clefts in the rock faces, at other times like shafts or wells on the higher ground. Some 30 of these are at present known, but the majority do not call for any special remark, as they do not,

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Entrance, Mammoth Cave.

Lake Yanche

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Stalactites, "Crystal Cave."

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Stalactites and Shawl Formations, "Crystal Cave."

apparently, communicate with any large subterranean passages or caverns.

The cave named the "Ballroom Cave" is a large cavern in which a wealth of stalactites and stalagmites occur. It is particularly notable for the broken nature of its interior, evidently indicating that its existence is of considerable antiquity. One of the most interesting caves, perhaps, is the "Yonderup Cave," which is half-a-mile east of Lake Yanchep. Here there has been an extensive subsidence, leaving a large open chasm, by climbing down the sides of which the cave is entered. Passing, then, under some immense masses of dislodged rock, a narrow passage leads into an extensive chamber containing stalactites, stalagmites, columns, and other exquisite formations, which, whilst in many respects they resemble those in the Yallingup and other caves in the South-Western District, even excel them in the greater variety and beauty of their tints.

In another cave, near Lake Yanchep, occur also chambers remarkable for their grandeur and their beauty, the innermost one being, approximately, 100ft. long, 60ft. broad, and 40ft. high, and displaying innumerable stalactites and stalagmites of fantastic shapes and varying sizes, whilst a most notable feature is a large folded shawl formation, measuring 10ft. in length, delicately tinted in various shades of pale pink and amber.

Recently several important discoveries have been made in the Yanchep District. Mr. Henry White, the honorary warden of the Caves, carried on exploratory work for some time, with the result that the "Crystal Cave" was brought to light. There are two chambers in this cave, measuring 400 feet and 600 feet in length respectively. The formations there are exceptionally fine, some of the stalactites attaining a length of 7 feet, whilst the cluster of shawl formations, known as the "Butterfly," is a special feature of the cave. A few hundred yards to the south of the "Crystal Cave," Mr. White discovered another fine opening which leads to what is known as the "Cauliflower Cave." The formations in this cave are similar to those to be seen in the well-known "Blackboy Hollow Cave" in the South-West.

It is evident from the general nature of the country, which is honeycombed with caverns, made apparent by the resonance noticeable in the ground when riding over it, that an extended search will reveal many other caves, probably of equal, and possibly of even greater beauty. The locality is one, therefore, which will well repay a careful and systematic search, as it will doubtless in future be a favourite pleasure resort of those residing in or visiting the metropolis.

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5.—LAND TITLES.

(Information supplied by Alfred E. Burt, Registrar of Titles.)

Up to the year 1875, landed property in Western Australia was secured by registration of deeds, taking priority according to date of registration; and its transfer was effected by the ordinary system of conveyancing. This system still prevails as to all lands not under the operation of the Torrens system. The latter method of registration, which is very much less cumbersome in its application than that which it has superseded, was introduced by an Act of Parliament in 1874, which came into operation on the 1st July, 1875. The Transfer of Land Act of 1874 has subsequently been amended by other enactments passed in 1878, 1879, 1880, and 1883, and the whole law on the subject consolidated by "The Transfer of Land Act, 1893," which repealed all former Acts, and introduced many improvements. Since then there have been two further amending Acts, one in 1896 and one in 1902, both dealing with certain sections in the principal Act of 1893, which still remains the basis of the present Transfer of Land system.

All lands alienated by the Crown since the Transfer of Land Act came into operation are held under the provisions of that Act. Lands alienated before that date may be brought under its operation by application, on proof of title being furnished to the Commissioner of Titles, followed by advertised notice. The provisions of the Act allow of an inexpensive and simple manner of transferring, mortgaging, or otherwise dealing with lands included in Certificates of Title under the Act.

Existing encumbrances are endorsed upon the Certificate.

Trusts are not expressed upon the Certificate, but Declaration of Trust may be lodged, and may be protected by caveat.

A married woman may be registered in her own name.

These are some of the more especially noteworthy points. The advantages of the system as a whole can scarcely be over-estimated, it being particularly adapted to the circumstances of a colony. No great difficulty is experienced in its working, or in its application in connection with other enactments. The general legislation of England with respect to real property (subject to 57 Vict., No. 9, which makes real property distributable as personalty is) has been from time to time adopted by local enactment. Real estate is by statute made a legal asset in the hands of the personal representatives of a deceased debtor, in the same manner as personal estate, and may be sold and conveyed by an executor or administrator without any application to the Court.

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Cauliflower formation, "Cauliflower Cave."

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Stalactites, "Cauliflower Cave."

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In drawing conclusions from the following figures, as to the number of applications received during each year by the Commissioner of Titles, it must be borne in mind that only a small proportion of these are applications to bring land under the operation of the Transfer of Land Act, the number being 51 in 1900; 63 in 1901; 58 in 1902, and 85 in 1903.

Tabular View of the transactions under the Transfer of Land Act, from the commencement of its operation on the 1st day of July, 1875, to the 31st December, 1903.

Year.	Applications Received.	Applications Rejected.	Transfers Registered.	Mortgages Registered.	Leases Registered.
1875	31	3	1	1	...
1876	81	5	26	13	1
1877	108	5	38	34	1
1878	102	8	88	34	...
1879	105	8	103	43	1
1880	92	19	168	36	4
1881	107	10	143	70	3
1882	154	10	296	111	3
1883	173	9	349	144	4
1884	126	5	426	178	14
1885	152	6	633	216	7
1886	175	8	1,085	278	17
1887	136	4	733	303	16
1888	149	4	970	311	16
1889	164	8	912	271	21
1890	194	5	1,137	277	20
1891	262	6	2,277	366	29
1892	299	9	2,417	492	28
1893	220	8	1,828	520	34
1894	267	8	1,909	481	34
1895	361	5	2,934	684	56
1896	440	8	5,322	923	123
1897	646	16	6,924	1,387	174
1898	736	5	6,076	1,517	143
1899	648	8	4,742	1,319	125
1900	606	9	4,492	1,348	152
1901	708	11	5,456	1,589	149
1902	819	10	6,636	2,015	173
1903	1,176	19	7,735	2,377	204

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As already mentioned, the old system of conveyancing still exists in Western Australia, by the side of the modern Transfer of Land system, as regards land alienated before July, 1875, and not since brought under the operation of the Transfer of Land Act. The Colonial legislature, by 19 Vict., No. 14, provides for the registration of deeds, giving priority according to date of registration, and renders null and void all unregistered instruments relating to real property as against any subsequent *bona fide* purchaser or mortgagee for valuable consideration, excepting *bona fide* leases at rack rent for any term not exceeding 14 years.

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Suspended Stocking, "Ballroom Cave."

Stalactites, 6ft. in length, "Crystal Cave."

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PART VIII.—INTERCHANGE.

1.—IMPORTS AND EXPORTS.

Compiled from Returns and Information supplied by Clayton T. Mason, State Collector of Customs, Etc., Etc.

The trade of the State of Western Australia, which, as will be seen from the following returns, has, during the last decade, increased at an almost phenomenal rate, was, during that period, chiefly transacted with the following countries: The United Kingdom, the Eastern States of the Commonwealth of Australia, New Zealand, India, Ceylon, Cape Colony, the United States of America, Germany, Delagoa Bay, Natal, Switzerland, France, Belgium, China, Canada, Sweden and Norway, the Straits Settlements, Japan, and Hong Kong. During the time mentioned the value of the imports has increased by £4,[illegible], and that of the exports by the very respectable sum of £9,073,326, the former being more than three times, and the latter more than eight times as great as they respectively were in the year 1894. This, although [illegible] has been an extraordinary advance in the value of the merchandise imported into the State, the value of the local products exported has increased proportionately to a far greater extent.

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Value of Imports into Western Australia from each Country for each of the Ten Years 1894-1903.

Country.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.
	£	£	£	£	£	£	£	£	£	£
UNITED KINGDOM—Total	611,308	943,477	2,057,635	2,624,086	2,051,872	1,550,029	2,225,746	2,566,162	3,350,644	2,599,142
COMMONWEALTH OF AUSTRALIA—										
Victoria	842,920	1,883,147	2,428,378	1,719,791	1,431,525	1,175,942	1,195,881	1,275,481	1,019,530	1,260,378
South Australia	473,680	667,115	1,203,919	945,380	651,224	670,560	915,845	670,720	502,562	741,897
New South Wales	55,829	147,927	443,341	576,521	637,292	443,436	501,498	596,427	378,564	454,228
Queensland	1,100	3,089	6,270	8,705	7,205	8,489	22,120	24,303	65,028	25,968
Tasmania	72	519	3,077	4,855	7,414	5,467	39,812	62,089	81,017	58,897
Total Imports from Commonwealth of Australia	1,373,610	2,701,797	4,084,985	3,255,252	2,734,660	2,303,844	2,675,156	2,559,020	2,046,701	2,541,368
NEW ZEALAND—Total	461	745	20,157	22,048	9,101	8,513	68,346	124,172	274,302	163,381
OTHER BRITISH POSSESSIONS—										
Canada	...	...	...	536	972	5,431	4,370	13,846	27,798	40,181
Cape Colony	...	...	...	...	41	166	422	1,086	313	43
Ceylon	1,680	1,768	630	3,563	6,119	11,995	15,513	20,837	45,429	28,374
Hong Kong...	1,863	52	-127	1,154	884	1,291	1,191	276	523	859
India	7,513	23,467	33,530	35,362	3,660	4,433	9,456	24,347	75,888	60,985
Mauritius	2,478	526	4,775	6,270	567	791	2,475	963	464	69
Natal	...	...	...	9	...	6	60	185	37	85
Singapore	48,48)	66,235	164,363	1(3,172	152,870	139,031	245,668	181,327	27,783	19,510
All other British Possessions ..	42	14	...	34	10	46	438	3,175	5,432	1,864
Total Imports from other British Possessions ...	62,056	92,062	203,425	210,100	165,123	163,190	279,593	245,532	183,667	151,970

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Value of Imports into Western Australia from each Country for each of the Ten Years 1894-1903—continued.

Country.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.
	£	£	£	£	£	£	£	£	£	£
FOREIGN COUNTRIES—										
Belgium	16,356	1	154	4,181	15,767	28,063	122,873	104,506	17,491	38,410
China	...	...	1	...	5	59	3	2,027	27,027	20,966
France	3,145	3,858	5,431	12,515	12,717	8,582	7,602	18,970	77,399	71,097
Germany	258	7,371	33,293	77,156	130,832	155,927	328,414	264,435	302,964	326,054
Holland	32,117	9	...	15	78	24,025	263	1,553	12,646	12,690
Italy	185	473	844	3,502	3,251	5,884	12,430	8,312	16,094	16,086
Japan	27	...	472	73	799	1,431	1,240	4,016	28,732	18,509
Java	...	...	...	...	...	...	3	8,545	91,827	2,389
Norway	...	25	233	13,752	4,921	5,240	171	9,164	21,389	26,468
Sweden	...	2,046	14,755	35,820	20,654	11,194	10,784	17,575	9,980	10,775
Switzerland		...	...	...	14	...	9	2,160	66,213	84,750
United States of America ...	14,878	23,047	72,077	160,055	91,268	203,777	236,035	507,563	650,219	651,596
All other Foreign Countries ...	18	40	95	50	903	3,804	3,500	10,459	40,657	34,351
Total Imports from Foreign Countries	66,979	36,870	127,355	307,079	281,209	447,956	713,337	959,285	1,363,068	1,314,061

SUMMARY. §

UNITED KINGDOM	611,308	943,477	2,057,635	2,624,086	2,051,872	1,550,029	2,225,746	2,566,182	3,350,644	2,599,142
COMMONWEALTH OF AUSTRALIA ...	1,373,610	2,701,797	4,084,985	3,255,252	2,734,660	2,303,844	2,675,156	2,559,020	2,046,701	2,541,368
NEW ZEALAND	461	745	20,157	22,048	9,101	8,513	68,346	124,172	274,308	163,361
OTHER BRITISH POSSESSIONS ...	62,056	92,062	206,425	210,100	165,123	163,190	279,593	245,532	183,667	152,003
Total British	2,047,135	3,738,081	6,366,202	6,111,486	4,960,756	4,025,576	5,248,841	5,494,886	5,855,314	5,455,894
FOREIGN COUNTRIES	66,979	36,870	127,355	307,079	281,209	447,956	713,337	959,285	1,363,068	1,314,028
GRAND TOTAL	2,114,414	* 3,774,951	† 6,493,557	‡ 6,418,565	5,241,965	4,473,532	5,962,178	6,454,171	7,218,352	6,769,922

* An amount of £7,080 was erroneously omitted from the total Imports for 1895, and has been included in those for 1896. † An amount of £87,299 was erroneously omitted from the total Imports for 1896, and has been included in those for 1897. ‡ *See* note †. § The figures for 1901 are:—United Kingdom, £2,565,302; Commonwealth of Australia, £2,650,527; New Zealand, £66,124; Other British Possessions, £167,289; Total British, £5,449,242; Foreign Countries, £1,223,238; Grand Total, £6,672,480.

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Value of Exports from Western Australia to each Country for each of the Ten Years 1894-1903.

Country.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.
	£	£	£	£	£	£	£	£	£	£
UNITED KINGDOM—Total	330,216	328,125	508,755	1,736,205	2,293,652	3,774,247	4,268,419	5,625,459	4,364,910	4,071,968
COMMONWEALTH OF AUSTRALIA—										
Victoria	760,626	854,293	912,139	1,633,187	2,112,128	1,990,418	755,788	276,252	233,059	208,607
South Australia	34,038	50,873	37,836	313,152	281,388	265,583	223,285	146,685	114,149	60,305
New South Wales	34,707	26,075	12,579	31,717	65,465	676,401	143,388	149,558	449,223	596,055
Queensland	15	777	226	692	2,834	4,012	2,165	987	650	1,008
Tasmania	...	...	179	415	841	1,017	405	1,140	1,669	632
Total Exports to Commonwealth of Australia ...	829,386	932,018	962,959	1,979,163	2,463,656	2,937,431	1,125,031	574,622	798,750	866,607
NEW ZEALAND—Total	13	...	...	1,055	305	143	307	9,793	5,415	33,956
OTHER BRITISH POSSESSIONS—										
Canada	...	100	...	...	...	...	...	...	36	...
Cape Colony	13,566	377	...	27,339	40,533	79,600	84,167	166,777	1,058,225	681,926
Ceylon	...	...	160	...	4,097	8,233	445,074	1,696,185	1,146,175	1,909,490
Hong Kong	16,128	7,871	17,837	8,854	14,517	23,385	20,833	50,478	27,729	9,783
India	...	300	...	120	31,559	9,847	513,661	43,380	787,692	2,316,166
Mauritius	4,033	150	6,207	1,540	1,037	3,264	3,251	3,460	6,400	2,608
Natal	70	8,579	38,632	34,690	20,785	46,520	124,027	69,459	224,867	139,673
Singapore	52,055	33,462	57,190	85,874	26,164	20,705	23,713	27,905	31,987	14,187
All other British Possessions	436	...	...	40	...	...	30	88	...	11
Total Exports to other British Possessions	86,298	50,839	120,026	158,457	138,692	191,554	1,214,756	1,987,702	3,285,111	5,073,844

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Value of Exports from Western Australia to each Country, for each of the Ten Years, 1894-1903—continued.

Country.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.
	£	£	£	£	£	£	£	£	£	£
FOREIGN COUNTRIES—										
Arabia	...	...	...	...	...	...	...	...	12,122	...
Argentine Republic	...	50	...	...	2,935	5,456	53,258	39,818	...	...
Belgium	100	411	...	555	3,124	3,103	499	4,102	41,194	28,356
Brazil	...	...	...	53,886	...	...	...	...	...	...
China	123	6,084	14,791	...	...	...	14,227	11,841	36,803	21,639
Egypt	...	...	...	...	16	10	...	50,000	105,002	...
France	2,264	8,985	11,493	7,633	4,501	7,847	42,058	110	30	840
Germany	2,679	50	3,957	2,580	3,036	4,574	1,802	9,686	20,673	2,708
Guam	50	...	28,240	120	50,946	58,213	103,812	186,339	94,536	59,559
Japan	51	...	...	24	74	...	...	298	250,000	38
Java	50	...	...	80	...	...	...	1,854	...	5
Lorenzo Marquez	100	5,742	...	...	...	...	...	...	32,220	148,060
Philippine Islands	...	...	...	...	...	...	4,013	8,370	1,950	10,502
United States of America ...	28	150	5	120	...	78	175	273	305	150
Uruguay	...	...	...	...	...	2,986	12,480	...	...	6,388
All other Foreign Countries ...	58	100	...	220	69	...	11,287	5,356	2,337	117
Total Exports to Foreign Countries	5,503	21,572	58,486	65,218	64,701	82,267	243,541	318,047	597,172	278,357

SUMMARY.*

UNITED KINGDOM	330,216	328,125	508,755	1,736,205	2,298,652	3,774,247	4,268,419	5,625,459	4,364,910	4,071,967
COMMONWEALTH OF AUSTRALIA ...	829,386	932,018	962,959	1,979,163	2,462,656	2,937,431	1,125,031	574,622	798,750	866,608
NEW ZEALAND	13	...	...	1,055	305	143	307	9,788	5,415	33,956
OTHER BRITISH POSSESSIONS ...	86,288	50,839	120,026	158,457	138,692	191,554	1,214,756	1,987,702	3,285,111	5,073,844
Total, British	1,245,903	1,310,982	1,591,740	3,874,880	4,895,305	6,903,375	6,608,513	8,197,576	8,454,186	10,046,375
FOREIGN COUNTRIES	5,503	21,572	58,486	65,218	64,701	82,267	243,541	318,047	597,172	278,357
GRAND TOTAL	1,251,406	1,332,554	1,650,226	3,940,098	4,960,006	6,985,642	6,852,054	8,515,623	9,051,358	10,324,732

* The figures for 1904 are:- United Kingdom, £4,440,817; Commonwealth of Australia, £359,079; New Zealand, £24,695; Other British Possessions, £5,025,742; Total British, £9,850,283; Foreign Countries, £421,178; Grand Total, £10,271,511.

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The Imports, Exports, and Total Trade of Western Australia, from 1894 to 1903*, with their value per head of mean population, were as follows :—

Year.	Imports.		Exports.		Total Trade.		Excess of Exports over Imports.	Percentage of Excess to Total Trade.
	Total value.	Value per head.	Total value.	Value per head.	Total value.	Value per head.		
	£	£ s. d.	£	£ s. d.	£	£ s. d.	£	
1894	2,114,414	28 3 5	1,251,406	16 13 5	3,365,820	441 6 10	†863,008	†25·64
1895	3,774,951	41 17 6	1,332,554	14 15 8	5,107,505	561 3 2	†2,442,397	†47·82
1896	6,493,557	52 18 6	1,650,226	13 9 0	8,143,783	66 7 6	†4,843,331	†59·47
1897	6,418,565	41 5 2	3,940,098	25 6 7	10,358,663	66 11 9	†2,478,467	†23·93
1898	5,241,965	31 0 4	4,960,006	29 7 0	10,201,971	60 7 4	†281,959	†2·72
1899	4,473,532	26 10 11	6,985,642	41 9 0	11,459,174	67 19 11	2,512,110	21·93
1900	5,962,178	33 14 0	6,852,054	38 14 8	12,814,232	72 8 8	889,876	6·94
1901	6,454,171	34 5 6	8,515,623	45 4 5	14,969,794	79 9 11	2,061,452	13·77
1902	7,218,352	35 1 8	9,051,358	43 19 10	16,269,710	79 1 6	1,833,006	11·27
1903	6,769,922	30 11 11	10,324,732	46 13 2	17,094,654	77 5 1	3,554,810	20·79

NOTE.—The term Total Trade, as used above, is one which, though generally used in this connection, cannot by any means be considered as covering the whole trade of the State, since it represents solely the values of commodities received from or sent to places outside the State, and wholly neglects the important buying and selling, exchanging, etc., of goods taking place within the limits of the State itself.

* The figures for 1904 are :—Value of Imports, £6,672,480; per head, £28 4s. 3d.; Value of Exports, £10,271,511; per head, £43 8s. 7d.; Value of Total Trade, £16,943,991; per head, £71 12s. 10d.; Excess of Exports over Imports, £3,599,031; Percentage of Excess to Total Trade, 21·24.

† Signifies excess of imports over exports.

The above table shows that between the years 1894-1903 the annual total trade increased from £3,365,820 to £17,094,654, or more than five-fold, being nearly twice the rate of increase in the population for the same period.

As regards imports, the highest point reached during the earlier years was attained in 1896, when, owing to the introduction of heavy

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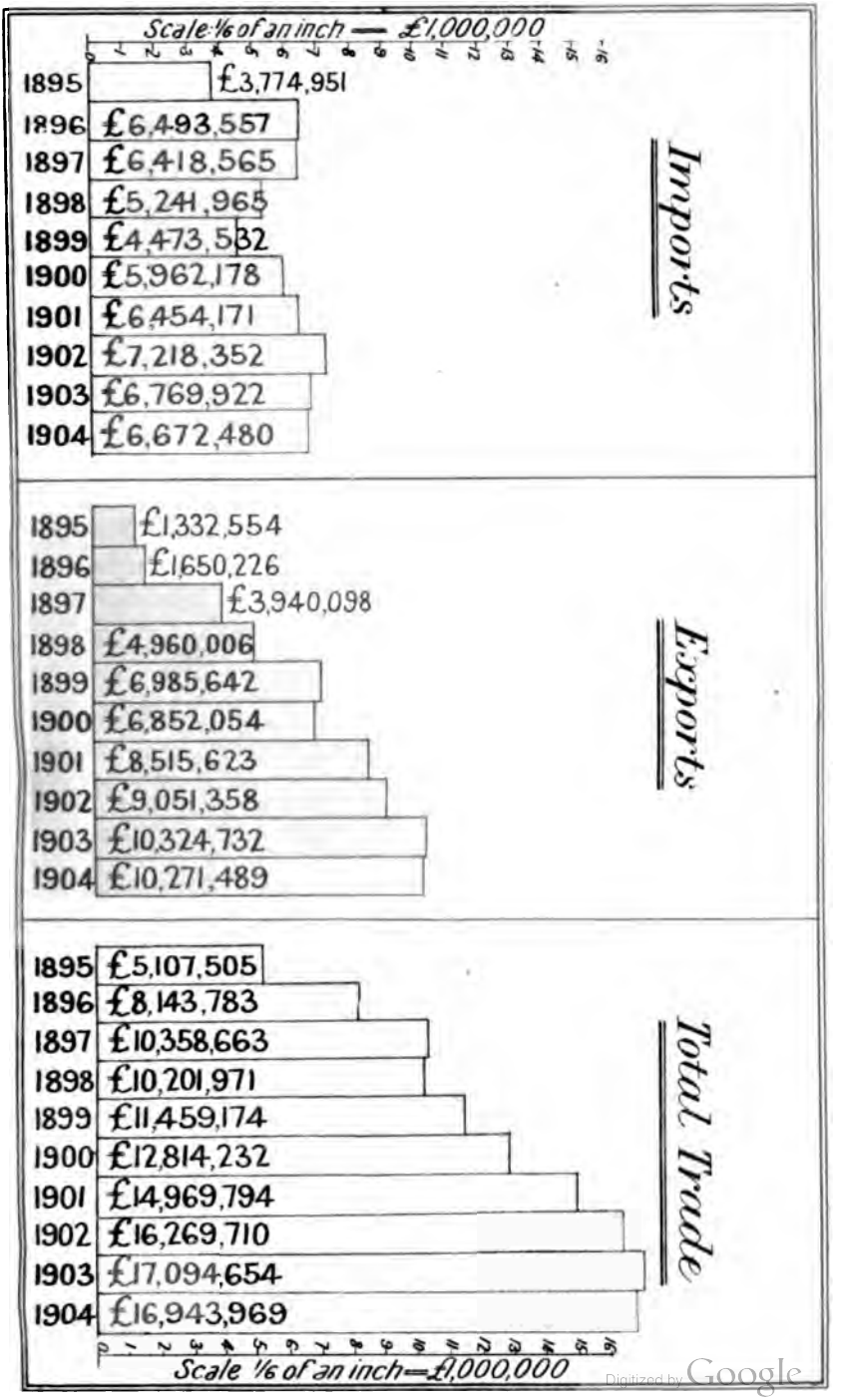

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shipments of mining machinery, hardware, and railway plant, in addition to extensive consignments of foodstuffs, wearing apparel, and general merchandise, consequent on the increased activity in mining development, and the resulting influx of population, which for that year alone was close on 36,000, the total value reached was no less a sum than £6,493,557, or £52 18s. 6d. per head of the mean population.

During the three succeeding years a continuous decrease was experienced, both in the total value of the imports, and also, to a larger extent, in the value per head, the lowest point being reached in 1899, with a total of £4,473,532, or £26 10s. 11d. per head. From this point to 1902 there was a rapid recovery, the total for that year being £7,218,352, or about £725,000 more than that of 1896, though the average per head, owing to the large increase in the population, was in 1902 £17 16s. 10d. less than in 1896. In 1903 the imports again showed a decrease, the total for that year being £6,769,922.

In the case of exports a steady increase was experienced in the total value from 1892 to 1899, but in 1900, owing largely to the fall in the price of wool and a considerable decrease in the amount exported, both referred to on page 91 of Vol. II. of the previous issue of the *Year Book*, together with a heavy reduction in the export of timber, the total receded by £130,000.

In 1901, however, wool "put up a record" in quantity, the export exceeding 13,500,000lbs., though, owing to the diminished price obtainable, the value was actually £45,000 less than that recorded in 1899. In timber also, as regards both quantity and value, it was "a record year."

These increases, combined with the enormous output of gold, account in a large measure for the phenomenal advance in the value of exports for 1901, when the total exceeded that of the previous year by no less a sum than £1,663,569. During 1902 and 1903 the increase continued, the total amounts for these years being respectively £9,051,358 and £10,324,732. Although, with the exception of that for 1900, the increases in the total value of exports have been continuous, yet, owing to the variations in the increase of population, the averages per head have fluctuated somewhat, the lowest being £13 9s. in 1896, and the highest £46 13s. 2d. in 1903.

The balance of trade, that is, the difference in money value between the exports and the imports, it will be seen from the above table, was, in the past, against the State; a tendency to this preponderance of the imports, in fact, is noticeable throughout the greater part of the Colony's earlier history. During the ten years under review this excess of imports presented some interesting fluctuations, and, finally, in the year 1899, gave place to an excess

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of exports. From 25·64 per cent. in the year 1894, the percentage of this excess to total trade suddenly advanced to 47·82 per cent. in 1895, and in 1896 reached 59·47 per cent. After that it fell with remarkable rapidity to 23·93 per cent. in 1897, and in 1898 reached 2·76 per cent. Then came the change to the other side of the balance, the percentage, in 1899, becoming 21·92 in favour of the exports. It fell back, however, to 6·94 per cent. in 1900, then rose to 13·77 per cent. in 1901, fell again to 11·27 per cent. in 1902, and finally reached 20·79 per cent. in 1903. In the consideration of these figures it must be borne in mind that the years 1895 and 1896 witnessed the phenomenal development of the Eastern Goldfields. An analysis of the articles imported and exported during the ten years under consideration discloses an unmistakable connection between the development of the resources of the State and the fluctuations in the balance of trade. The large amount of money represented by the imports may be taken as indicating in its turn a form of permanent investment, lodged as it were in railway facilities, water supply and conservation, mining and reduction plants, and other works of general utility, both public and private, and destined to bear interest in the near future in the shape of increased productiveness in the mineral and various other sources of wealth possessed by the State, which, without its means, would lie dormant. That this purpose has been achieved is proved by the remarkable increase lately attained in the value of the exports, especially in the case of gold and timber, which has resulted in the reversal of the balance of trade, the exports now exceeding the imports in value.

The following tables of some of the principal amounts which made up the imports and exports of the past ten years illustrate the facts just indicated. Those figures, as a rule, are shown which have been mainly responsible for the at one time abnormal growth of the total import figures. It will at once be seen that the great demand for the articles particularised was due to the peculiar conditions of a population not yet able to produce its own requirements, but in the aggregate expending large amounts in the opening up of new avenues of production. Several of the items bear directly on the development of the goldfields. Large sums were disbursed for the importation of horses and camels for transport services, and for their fodder. The amounts for Railway Stores exceeded almost every other item, increasing from £144,293 in 1894 to £647,588 in 1897. Apparel and Attire Articles, Piece Goods, etc., in 1900 amounted to £664,722, and in 1903 to £887,704. Mining machinery reached, in 1896, the respectable figure of £364,706, and again, in 1900, a total of £322,296. In 1903, however, it is only recorded at £129,022. The importations of Steel, which only totalled £3,694 in 1894, reached £316,600 in 1900, and £242,049 in 1901; Smelting Material, from £131 in 1894, rose to £165,941 in 1900, and £55,814 in 1901; Cyanide, from £1,280 in 1896, to £129,964 in 1900, £144,819 in 1901, £161,191 in 1902, and £170,646 in 1903. All these articles bear

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witness to the rapid development of the industries in which they are required. Though mining machinery has not of late maintained the prominent position it occupied among the imports of former years, the great increase in general machinery indicates a rapid expansion of various industries other than goldmining, the amounts advancing from £49,568 in 1894, to £573,718 in 1902, and £480,940 in 1903. The most considerable factor of the imports of 1895 and 1896 was "coin," amounting in those years to £926,770 and £980,639 respectively, or nearly a million pounds each year. In view of the exceptional position "coin" ordinarily occupies among the factors of trade, this item can, perhaps, hardly be considered as an ordinary import, but rather as one which furnishes an indication of the insufficiency of the coin then in circulation in the State to meet the increasing requirements brought about by the rapid expansion of trade, and the consequent development of new avenues of labour. Included in the foregoing list also are various kinds of provisions which the local pastoral, agricultural, and other industries were unable to supply in proportion to the suddenly increased demand.

Among the more important exports of products of the State, gold, of course, occupies a unique position, and to it is almost solely due the rapid diminution and subsequent reversal of the excess of imports over exports. Nor is this to be wondered at, since the energies of a large proportion of the population have been to a very great extent occupied in its production. Of late, however, the timber industry also has assumed considerable importance.

It is notable that, since the opening of the Perth Branch of the Royal Mint, not only have the exportation of raw gold to the Eastern States, and the importation of gold coin, fallen to comparatively small amounts, but the exportation of sovereigns struck in the State has risen from £50,000 in 1899, to £1,750,763 in 1900, £2,807,841 in 1901, £4,149,869 in 1902, and £4,556,192 in 1903. The export of raw gold to the United Kingdom certainly did not, at least during the three years immediately succeeding the establishment of the Mint, show the falling off that might have been anticipated. But, on the contrary, an increase was experienced—from 710,258ozs., in 1899, to 736,580ozs. in 1900, and to 931,385ozs. in 1901. Since 1902, however, the influence of the Mint has begun to make itself felt in an unmistakable manner, for instead of the export keeping pace with the rapidly-increasing gold output, the figures fell in 1902 to 685,544ozs., and in 1903, though it again advanced, it only reached 782,591ozs.

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Articles of Import (1894–1903).

	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.
	£	£	£	£	£	£	£	£	£	£
Horses (for use) ...	50,442	40,218	83,775	29,336	5,304	10,698	16,780	31,254	34,931	23,057
Camels	51,172	46,374	28,970	34,875	2,180	...	...	80	...	...
Hay and Chaff ...	37,745	51,819	73,245	59,020	9,650	3,115	10,551	4,545	4,231	7,458
Oats	42,916	116,207	117,233	109,719	81,878	69,559	77,553	88,163	96,946	76,508
Railway Stores ...	144,293	180,734	468,074	647,588	382,904	139,867	130,996	331,919	364,695	42,783
Explosives *a* ...	13,486	25,685	50,841	77,460	72,847	80,182	138,997	129,411	180,599	178,202
Cyanide	...	...	1,280	7,531	36,773	55,849	129,964	144,819	161,191	170,646
Mining Machinery ...	35,842	139,925	364,706	201,169	247,691	170,562	322,296	172,681	149,466	129,022
Other Machinery ...	49,568	85,037	223,499	224,761	206,104	292,716	278,534	404,277	573,718	480,940
Smelting Material ...	131	21	81	100	6,860	42,691	165,941	55,814	911	8,347
Steel	3,694	4,353	16,587	16,068	12,839	201,565	316,600	242,019	45,148	*c* 85,611
Coal	21,782	29,479	39,503	94,938	84,246	95,144	110,699	158,471	133,769	69,636
Tools	25,550	31,726	69,015	50,663	28,610	19,022	28,258	39,812	61,709	61,552
Galvanised Corrugated Iron	32,967	57,987	105,010	179,407	137,115	43,753	27,769	21,547	57,464	*d* 135,762
Plain Galvanised Iron	4,728	9,170	45,242	4,403	10,495	24,605	121,345	89,992	156,403	
Ironmongery and Hardware ...	25,792	37,858	100,963	77,724	47,398	25,309	36,632	46,245	*b* 124,674	116,149
Coin	239,900	926,770	980,639	65,850	135,300	5,245	4,118	26,000	17,340	80
Apparel and Attire Articles, Piece Goods, etc. ...	224,034	353,593	535,687	619,282	499,867	465,470	664,722	633,242	781,362	731,154
Cattle (for slaughter)	1,819	37,298	68,820	119,078	170,059	78,694	113,439	124,458	102,640	*e* 118,580
Sheep (for slaughter)	2,839	23,158	27,642	97,002	59,892	85,736	64,840	67,236	75,519	*e* 104,454
Pigs (for slaughter)	52	2,479	8,181	9,246	11,729	5,985	5,776	3,922	3,286	2,106
Poultry, etc. .	542	1,786	3,196	3,218	2,059	1,610	1,136	1,472	1,608	1,218
Bacon, Hams, and Tongues .	22,120	37,403	79,625	89,020	88,282	93,796	112,185	114,657	148,995	138,386

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Meats	44,329	50,214	87,183	82,212	73,989	71,029	86,165	81,730	106,045	181,827
Fish	8,866	15,291	36,368	33,965	24,402	24,838	29,857	37,103	43,730	35,630
Eggs	4,996	11,920	33,389	51,429	52,667	50,682	60,465	57,430	71,885	73,538
Butter	50,354	73,999	148,971	188,478	195,467	184,239	204,457	247,808	310,584	285,587
Milk (preserved) ...	17,639	37,167	47,466	73,799	73,198	59,681	80,778	78,115	89,865	99,644
Sugar	55,178	54,239	92,685	105,366	111,085	112,745	128,889	132,539	143,758	164,700
Tea	41,912	36,440	59,957	56,174	65,417	65,237	70,334	88,160	69,790	71,694
Jams, Jellies, etc. ...	22,030	27,637	48,131	52,324	47,026	51,546	48,731	42,932	47,458	53,273
Wheat	3,307	17,812	40,120	51,282	56,906	11,714	11,446	29,679	16,298	42,184
Flour...	44,300	62,712	152,135	197,519	156,411	75,159	66,028	85,378	116,831	164,480
Potatoes	10,121	10,219	33,601	43,795	69,430	28,130	24,570	57,029	62,555	45,978
Fruits	18,659	32,878	52,770	70,379	60,700	60,987	70,666	75,354	72,339	e 99,844
Wine...	19,320	36,604	71,693	54,677	30,082	21,369	33,628	34,007	33,043	31,140
Spirits	50,650	80,494	123,510	136,824	104,344	90,525	126,394	112,124	157,192	135,732
Tobacco, Cigars, and Cigarettes ...	34,309	53,545	93,809	101,617	89,470	86,270	96,423	101,263	119,527	167,167
Oils	15,957	26,066	48,181	61,132	51,872	70,774	93,865	122,435	81,494	93,843
Timber	17,248	45,586	141,659	158,732	52,177	43,040	53,274	70,564	78,673	96,062
Furniture	12,503	24,623	51,100	58,402	25,894	17,883	26,181	30,921	28,660	28,225
Stationery	12,418	23,225	40,670	45,302	33,754	23,700	29,792	34,068	35,200	38,792
Totals	1,515,510	2,959,761	4,895,212	4,440,866	3,714,373	3,160,721	4,221,024	4,450,765	4,960,902	4,580,991
Total imports ...	2,114,414	3,774,951	6,493,557	6,418,565	5,241,965	4,473,532	5,962,178	6,454,171	7,218,352	6,769,922

a Dynamite, Blasting Powder, Gelignite, Blasting Gelatine, Dynamite Gelatine, Rackarock, etc. b Including certain other metals also.
c Including Iron, but not Galvanised Iron. d No separate figures supplied by Customs Department. e Including Fruits and Vegetables—Fresh, Preserved, and Dried. * Including those for breeding, etc.

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Exports (1894–1903) of Principal Articles, the Produce of the State.

		1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.
Raw Gold (value) ...	£	787,099	879,748	1,068,808	2,564,977	3,990,698	5,451,368	3,799,116	3,941,797	3,318,958	4,061,767
,, ,, ...	ozs.	207,131	231,513	281,265	674,994	1,050,184	1,434,570	999,767	1,023,843	897,434	1,106,496
Gold Coin	£	...	...	...	...	...	50,000	1,750,763	2,807,841	4,149,869	4,556,192
Wool (value)... ...	£	233,201	183,510	267,506	295,646	287,731	423,296	270,718	378,135	458,078	443,743
,, ...	lbs.	9,423,876	8,290,805	10,995,659	12,374,881	10,126,306	9,948,417	9,094,743	13,578,[illegible]63	12,932,271	12,907,065
,, per lb.		4½d. & 8d.†	5½d. & 9d.†	5½d. & 9½d.†	5½d. & 9½d.†	6½d. & 1s.†	9½d. & 1s. 7½d.†	7d. & 10d.†	6½d. & 10d.†	8½d. & 1s. 3½d.†	8d. & 1s. 4d.†
Timber (value) ...	£	74,804	88,146	116,420	192,451	336,195	553,198	458,461	572,354	500,533	620,012
,, ...	loads	21,274	25,106	30,911	47,266	81,739	128,271	114,508	143,012	125,125	§
,, per load ...	...	£3 10s. 4d.	£3 10s. 3d.	£3 15s. 4d.	£4 0s. 5d.	£3 19s. 10d.	£4	£4 0s. 1d.	£4	£4	§
Sandalwood	£	23,430	30,863	65,800	49,480	31,812	29,719	39,088	73,931	61,771	37,913
Pearl-shell	£	37,805	27,298	30,313	40,253	78,784	90,647	86,513	105,730	138,689	174,322
i.e., North-West,...	tons	423	353½	362½	366	538½	609½	696½	717	790	900½
,, per ton		£84	£74 10s.	£83 4s.	£105 11s.	£142 5s.	£142 5s.	£140	£146 9s.	£174 4s.	£198 2s.
,, (value) ...	£	35,490	26,265	30,160	38,632	76,566	87,946	84,961	104,980	137,609	173,865
Shark Bay (value)	£	2,306	1,040	53	1,621	2,196	3,301	1,592	740	1,089	457
Pearls (estimated) ...	£	25,000	20,000	20,000	20,000	20,000	20,000	20,000	25,000	40,000	50,000
Skins	£	14,775	18,588	18,111	28,081	44,545	61,998	54,089	64,222	87,374	103,747
Guano	£	3,919	200	4,506	3,250	9,396	5,165	7,537	2,742	4,800	2,034
Hides	£	103	353	488	9,965	15,681	20,983	20,863	22,337	21,062	24,878
Tallow	£	90	12	20	2,104	2,787	4,525	4,244	9,741	4,888	70
Silver (value)... ...	£	...	...	...	...	...	...	3,594	7,609	9,190	19,153
,, ...	ozs.	...	...	...	...	...	...	23,749	69,869	83,203	168,113
Tin Ore (value) ...	£	15,274	9,703	4,338	3,275	2,760	23,163	38,178	39,495	22,568	23,856
,, ...	tons	390½	277	127½	95½	68	308	470½	506½	278	292
Tin (Ingot), value ...	£	...	...	...	...	...	...	18,872	12,607	16,831	29,277
,, ,, ...	tons	...	...	...	...	...	...	142½	96½	141	23[illegible]½
Copper Ore	£	...	12,952	100	1,063	4,266	41,452	16,462	54,903	4,966	4,527
Copper (value)‡ ...	£	...	...	...	...	...	9	17,475	55,866	7,918	33,288
,, ‡	tons	...	...	...	...	...	(548 ozs.)	249	880½	175	1,075
Precious Stones ...	£	...	...	...	...	...	...	...	1,000	...	..
Horses (value) ...	£	285	958	360	1,897	217	867	7,492	7,675	1,105	145
,, ...	No.	5	22	26	82	20	35	494	504	75	8
Sheep (value) ...	£	520	...	364	1,188	105	470	1,069	1,954	2,328	65
,, ...	No.	1,300	...	1,004	1,794	300	1,133	1,638	3,237	3,663	100
Fresh Meat	£	...	...	...	...	...	3,094	4,582	6,154	...	...
,, Fish	£	..	...	...	...	...	731	1,317	877	...	...
,, Vegetables	£	..	...	...	..	...	1,398	2,514	2,735	...	...
Totals ...	£	1,215,306	1,272,331	1,597,004	3,218,540	4,814,967	6,782,083	6,622,777	8,194,705	8,833,967	10,193,989
Total Produce*	£	1,219,067	1,273,638	1,601,748	3,218,569	4,820,420	6,793,946	6,639,927	8,216,718	8,871,676	10,193,449
Total Exports	£	1,251,406	1,292,584	1,650,288	3,240,099	4,920,102	6,895,642	6,855,044	8,515,625	9,161,358	10,394,732

* Produce of the State exported. † Lowest and Highest, respectively. ‡ Ingot and Matte. § Figures not supplied by Customs Department.

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A comparison of the imports and exports of the State during 1903 with those of the other States of the Commonwealth, and of New Zealand for the same period, reveals the fact that, though in the totals Western Australia is yet considerably behind the more populous of the sister States, yet, when the values per head of mean population are taken, her imports, and to an even greater extent her exports, show a very much higher ratio than any of them.

States, etc.	Imports.				Exports.			
	Total.	Per head.			Total.	Per head.		
	£	£	s.	d.	£	£	s.	d.
Commonwealth. Western Australia	6,769,922	30	11	11	10,324,732	46	13	2
Commonwealth. New South Wales	26,770,169	18	16	3	26,738,111	18	15	10
Commonwealth. Victoria	17,859,171	14	15	6	19,707,068	16	6	0
Commonwealth. Queensland ...	6,731,207	18	2	7	9,514,974	18	11	2
Commonwealth. South Australia ...	6,743,872	18	8	6	8,490,359	23	3	11
Commonwealth. Tasmania	2,593,810	14	12	2	2,843,108	16	0	3
New Zealand	12,788,675	15	11	10	15,010,378	18	6	0

Notes on some of the Principal Imports.

The imports of live stock during the last five years have been as follows:—

—	1899.	1900.	1901.	1902.	1903.
	No.	No.	No.	No.	No.
Cattle (for slaughter) ...	7,921	12,309	11,984	8,941	12,214*a*
Sheep (for slaughter) ...	88,338	89,844	70,099	62,187	89,785*a*
Pigs (for all purposes) ...	4,322	5,706	2,145	2,901	1,198
Cattle (for breeding, etc.) ...	525	597	509	1,711	*a*
Sheep (for breeding, etc.) ...	2,924	5,230	3,532	3,601	*a*
Horses (for [illegible])	516	768	1,167	1,142	829
Horses (for breeding, etc.) ...	66	163	325	407	505

a For 1903 cattle for breeding have been included with cattle for slaughter, and sheep for breeding with sheep for slaughter.

It will be observed from the above figures that from 1900 to 1902 the imports of cattle for slaughter show a marked tendency to decrease, in spite of the constantly and rapidly increasing population of the State. The importation of sheep, also, fell very considerably in those years; while the imports of pigs, in 1903, had diminished to about one-fifth of the figures for 1900. All this points to distinct progress in the development of the live-stock industry. On the other hand, the number of cattle imported for breeding purposes is on the increase, thus furnishing an indication of the attempt which is being made to meet the growing demand for meat and

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dairy products. The corresponding figures relative to horses and sheep imported for breeding purposes are also satisfactory.

Boots and shoes were imported in 1903 to the value of £138,497, as against £123,593 for the previous year; or an increase in these articles of £14,904 during the twelve months. This increase must be accounted for by the fact that the mean population for 1903 exceeded that for 1902 by 15,523 persons. Though the retail trade is largely supplied by the local manufactories, their output for the year 1902 being 212,768 pairs of boots and shoes, and 220,525 pairs for the year 1903, the local industry was evidently not able to cope with so rapid an increase in the population as that above indicated.

The imports of beer, on the whole, continue to show a gradual decrease, owing to the ever-increasing quantity of beer and stout manufactured in the State. In 1902 the total value of this import was £100,797 and in 1903 £79,995. The quantities produced locally during these years were, respectively, 4,780,058 and 4,932,650 gallons.

The imports of flour greatly decreased after 1897, when the total was valued at £197,519. The amounts in the subsequent three years were, respectively, £156,411, £75,159, £66,028; then, however, with the increase of the population, a rapid rise was experienced during the next three years, the figures being £85,378 for 1901, £116,831 for 1902, and £164,480 for 1903, the largeness of the figures in the later year being mainly due to speculative shipments from oversea made owing to the drought in the East.

The value of oats, which reached £117,233 in 1896, fell to £81,878 in 1898, and in 1899 touched the lowest point, £69,559; since then the amounts have varied considerably, being £96,946 in 1902 and £76,508 in 1903.

Wheat totalled £57,288 in 1897 and £56,906 in 1898, but fell suddenly to £11,714 in 1899, remaining stationary at £11,446 during the following year. A considerable rise, to £29,679, was experienced in 1901, but, in 1902, the figure fell to £16,298. In 1903 the amount rose to £42,184, mainly, as mentioned above in the case of flour, on account of speculation.

In the six years, 1897-1902, imports of hay decreased as follows:—£3,051, £1,261, £716, £2,253, £773, and £913; whilst chaff, owing to increased local production, showed the following enormous reductions in the totals:—£55,969, £8,389, £2,399, £8,298, £3,772, and £3,318. In 1903 the values of hay and chaff were not kept separate, but amounted jointly to £7,458.

The foregoing figures furnish eloquent testimony as to the progress being made in the State, and its steady advance towards becoming self-supporting in regard to agricultural products.

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The imports of meats during the years 1901, 1902, and 1903 advanced considerably in value, the totals being, respectively, £196,387, £255,010, and £320,213; the figures including imports of bacon, ham, tongues, salt beef, pork, and fresh and preserved meats.

The imports of butter show an increase till 1902, the figures for 1900 and 1901 being, respectively, £204,457 and £247,808, and for 1902 £310,584. But in 1903 there was a fall to £285,587. There has been an increase also in the importation of eggs; the respective amounts for the years 1901, 1902, and 1903 being £57,430, £71,885, and £73,538. Preserved milk, from £80,778 for 1900, fell slightly in 1901, the amount for that year being £78,115. Since then the amount rose to £89,865 in 1902, and to £99,644 in 1903. Cheese increased steadily from £23,257 in 1900 to £26,104 in 1901, £29,385 in 1902, and £34,123 in 1903.

These figures bring prominently into view the extent of the market which exists for the products of the dairying industry, and emphasise the smallness of the results as yet locally attained in the matter of supplying the steadily increasing demand.

The value of potatoes imported in 1903 was much less than for 1902; the respective amounts being £45,978 and £62,555. When it is seen, however, that these values represent in quantity, respectively, 14,563 and 12,140 tons, it will be understood that the fall in prices in the other States accounts for a large proportion of this decrease.

Fruits show a decrease from £75,354 in 1901 to £72,339 in 1902; the amount for 1903 was £89,844, but in that year, owing to the new system of classification adopted by the Customs Department, certain classes of vegetables were included. Jams and jellies increased from £42,932 in 1901 to £47,458 in 1902, and £53,273 in 1903.

Agricultural implements were imported to the value of £25,998 in 1900, £32,735 in 1901, £49,362 in 1902, and £55,252 in 1903. The importation of mining machinery fell during these years from £322,296 to £172,681, £149,466, and £129,022; a natural consequence of the rapid development of the earlier years, and the more settled conditions now existing. Other machinery, however, advancing from £278,534 to £404,277, £573,718, and £480,940, testifies to the satisfactory growth of the various industries of the State.

Railway stores, which, upon the completion of the more important Government railway lines, had fallen from £647,588 in 1897 to £382,904 in 1898, and still further to £139,867 in 1899, and £130,996 in 1900, again made a very considerable advance in

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the following two years, the amounts being £331,919 in 1901, and £364,695 in 1902. The requirements for the latest additional lines having thereby been net, the importations under this head were, in 1903, reduced to £42,783.

The increase in the imports of coal, being £95,144 in 1899, £110,699 in 1900, and £158,471 in 1901, and the subsequent reduction of the amount to £133,769 in 1902 and to £69,636 in 1903, were no doubt due to the exigencies of the South African War, Albany being a coaling station for the transport ships; with the cessation of hostilities this outlet for coal supply naturally ceased to exist.

Among the imports not yet specially referred to, the following were some of the most important:—

Articles.	1902. £	1903. £
Army and Navy Articles	7,646	10,731
Bags, Sacks, etc., ...	37,440	37,528
Belting for Machinery	11,860	13,865
Bicycles, Tricycles, etc.	35,736	24,326
Biscuits	13,167	12,468
Blankets and Rugs	21,623	21,713
Books, printed	41,217	43,636
Bran, Pollard, etc.	77,112	57,280
Brooms and Brushes	12,841	12,317
Cakes and Puddings	10,107	12,371
Candles	1,000	a 10,592
Canvas	20,277	12,569
Carpeting, Oilcloth, etc.	26,272	31,313
Cement	34,353	21,233
Clocks and Watches	22,488	21,611
Cocoa and Chocolate	12,763	12,136
Coke and Patent Fuel	25,820	4,211
Confectionery	15,150	15,351
Copper Ware, etc.	9,640	6,972
Cordage	19,785	25,655
Cutlery	13,158	11,539
Diving Apparatus	8,443	13,684
Earthen and China Wares ...	7,301	7,118
Earthenware Drain Pipes, etc. ...	12,118	10,505
Essences and Essential Oils ...	11,570	13,038
Fancy Goods and Toys	23,835	25,181

a The increased importation of candles during 1903 was due to a considerable rise in the prices of tallow and stearine in Australia, which caused the cheap American candles to be placed on the Australian market in great quantities. A change in favour of the local article appears, however, to have already set in, and it is probable that the candle imports for 1904 will not reach the figure at which they stood in 1903.

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Articles.	1902. £	1903. £
Farinaceous Foods	11,876 ...	9,133
Fire-arms, etc.	7,545 ...	16,227
Flock, Kapock, etc.	8,913 ...	5,231
Glass and Glassware	33,809 ...	30,935
Hats and Bonnets	56,980 ...	49,836
Hops	13,487 ...	19,874
Hose of all kinds	7,255 ...	26,202
Immigrants' Baggage	25,278 ...	16,532
Iron and Steel Tubes or Pipes ...	54,346 ...	72,687
Iron (pig and scrap)	14,483 ...	21,467
Iron (tanks)	11,614 ...	7,057
Iron (wire netting)	19,115 ...	26,045
Iron (materials for fencing) ...	9,945 ...	42,037
Jewellery	38,893 ...	45,239
Lamps and Lampware	14,084 ...	11,806
Lard	1,985 ...	13,283
Lead	45,429 ...	4,333
Leather	42,678 ...	33,658
Leather Goods	16,568 ...	15,615
Malt	47,214 ...	25,815
Manures	23,040 ...	32,048
Matches	10,348 ...	12,756
Musical Instruments	25,252 ...	23,654
Nails, etc.	33,049 ...	24,017
Oatmeal (including Rolled Oats)	17,433 ...	19,123
Oilmen's Stores	6,363 ...	21,290
Onions	12,040 ...	9,347
Paints and Colours	16,852 ...	17,890
Paper of all kinds	52,250 ...	67,160
Photographic Material	3,577 ...	4,370
Pickles and Sauces	24,178 ...	19,849
Plants, etc.	5,049 ...	5,201
Quicksilver	10,424 ...	6,622
Rice	17,702 ...	22,961
Sewing Machines, etc.	11,542 ...	11,013
Silks, etc.	12,718 ...	13,174
Soap	23,194 ...	24,868
Stearine	28,103 ...	18,624

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Table showing Totals of Imports from the States of the Commonwealth of Australia, distinguishing between "British and Foreign" and "Australian" Produce (1903).

—	British and Foreign.	Australian.	Total.
	£	£	£
Victoria	143,520	1,116,858	1,260,378
South Australia	157,220	584,677	741,897
New South Wales	72,416	381,812	454,228
Queensland	344	25,624	25,968
Tasmania	20	58,877	58,897
Total	373,520	2,167,848	2,541,368

Total Value of Imports into the State of Western Australia from other States of the Commonwealth during the year 1904.

States.	Australian Origin.	Oversea origin (i.e., from places outside the Commonwealth).	Total.
	£	£	£
New South Wales	555,872	67,539	623,411
Victoria	1,082,405	160,862	1,243,267
Queensland	50,328	213	50,541
South Australia	559,563	93,412	652,975
Tasmania	79,232	1,101	80,333
Total	2,327,400	323,127	2,650,527

Value of Imports of the State at the various Ports of Western Australia, 1904.

Ports.	Value of Imports.
	£
Fremantle	4,626,235
Perth	1,613,148
Albany	154,169
Geraldton	121,341
Bunbury	60,917
Broome	49,284
Cossack	5,475
Vasse and Hamelin	5,347
Carnarvon	6,033
Port Hedland	6,485
Derby	4,202
Onslow	4,442
Esperance	12,758
Eucla	‡
Wyndham	2,498
Dongara	146
Total	6,672,480

‡ Included with Fremantle returns.

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Principal Imports during 1904 (including Imports from the other States of the Commonwealth departmentally termed "Interstate Transfers").

Articles.		Imports during the Year 1904.					
		Quantities.			Values.		
		Australian origin.	Oversea origin. *	Total.	Australian origin.	Oversea origin. *	Total.
					£	£	£
1. Acid, Tartaric	lb.	...	32,557	32,557	...	1,387	1,387
2. Ale and Beer (in Bottles)	gal.	18,706	401,302	420,008	2,407	65,413	67,820
3. " " (other)	"	18,589	32,928	51,517	1,538	2,562	4,100
Animals, Living—							
4. Horses	No.	2,241	11	2,252	67,102	833	67,935
5. Cattle	"	10,259	1	10,260	98,005	74	98,079
6. Sheep	"	49,673	532	50,205	51,004	286	51,290
7. Pigs	"	21	18	39	66	238	304
8. Other	£	...	...	...	4,440	526	4,966
9. Apparel, and all description of soft Goods	"	...	...	...	103,051	692,193	795,244
10. Bones, Hoofs, Horns	"	...	...	...	...	...	..
11. Boots and Shoes	"	...	...	...	91,496	48,134	139,630
12. Brushware	"	...	...	...	2,644	12,152	14,796
13. Butter	lb.	6,839,458	11,421	6,850,879	269,789	409	270,198
14. Candles	"	9,518	249,638	259,156	203	6,056	6,259
15. Cement	cwt.	6,603	202,553	209,156	815	22,802	23,617
16. Cheese	lb.	1,040,603	197,748	1,238,351	21,807	5,797	27,604
17. Clocks and Watches...	£	...	...	...	176	20,315	20,491
18. Coal	tons	149,415	190	149,605	75,097	184	75,281
19. Cocoa and Chocolate	lb.	4,546	249,688	254,234	194	15,678	15,872
20. Coffee and Chicory	"	103,551	109,004	212,555	1,992	4,334	6,326
21. Coke	tons	7,570	1,381	8,951	8,820	2,509	11,329

* Articles produced in places outside the Commonwealth.

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Principal Imports during 1904, etc.—continued.

Articles.		Imports during the Year 1904. Quantity. Australian origin.	Quantity. Oversea origin.*	Quantity. Total.	Values. Australian origin.	Values. Oversea origin.*	Values. Total.
					£	£	£
22. Confectionery	lb.	353,079	546,484	899,563	11,152	21,406	32,558
23. Copper Ingots	cwt.	10	...	10	33	...	33
24. Copra	,,	...	...	...	...	...	...
25. Cordage and Twines	£	...	...	...	15,783	45,121	60,904
26. Cream of Tartar	lb.	...	222,720	222,720	...	6,403	6,403
27. Drugs and Chemicals, N.E.I.	£	...	...	...	22,909	220,414	243,323
28. Earthenware and China, etc.	,,	...	...	...	2,123	20,056	22,179
29. Eggs	doz.	1,750,681	22,829	1,773,510	79,276	779	80,055
30. Fish (all kinds)	£	...	...	...	3,166	45,191	48,357
Fruits, Dried—							
31. Currants	lb.	868	564,717	565,585	16	4,764	4,780
32. Raisins	,,	229,679	190,693	420,372	3,289	2,149	5,438
33. Dates	,,	...	196,142	196,142	...	1,280	1,280
34. Other	,,	155,887	144,557	300,444	3,564	2,528	6,092
Fruits, Fresh—							
35. Apples	...centals	17,523	178	17,701	8,806	297	9,103
36. Bananas	,,	15,326	330	15,656	9,451	120	9,571
37. Oranges and Lemons	,,	6,465	10,858	17,323	4,577	7,618	12,195
38. Other	,,	9,526	838	10,364	6,378	353	6,731
39. Furniture	£	...	...	...	10,571	25,822	36,393
40. Glass and Glassware	,,	...	...	...	4,523	34,733	39,256
41. Gold—Uncoined	,,	...	...	...	...	...	...

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	Grain and Pulse—						
42.	Barley	...centals	14,795	13,034	27,829	4,141	4,175	8,316
43.	Beans and Peas	„	3,271	957	4,228	1,295	612	1,907
44.	Maize	„	5,184	10	5,194	1,010	4	1,014
45.	Oats	„	213,511	84,724	298,235	41,990	17,556	59,546
46.	Wheat	„	9,836	42	9,878	2,576	11	2,587
47.	Other, unprepared	„	909	267	1,176	250	148	398
48.	Bran, Pollard, and Sharps	„	265,112	1,616	266,728	38,672	167	38,839
49.	Flour	„	189,374	23,984	213,358	74,130	11,683	85,813
50.	Malt	„	9,531	40,697	50,228	5,975	31,857	37,832
51.	Oatmeal, etc.	lb.	1,966,182	250,401	2,216,583	9,493	2,477	11,970
52.	Rice	...centals	...	40,972	40,972	...	20,715	20,715
53.	Other, prepared	„	11,176	7,191	18,367	3,253	5,365	8,618
54.	Hats and Caps	£	...	...	...	8,392	51,910	60,302
55.	Hay and Chaff	cwt.	28,143	191	28,334	4,123	36	4,159
56.	Honey	lb.	212,841	...	212,841	3,138	...	3,138
57.	Hops	„	91,185	181,844	273,029	6,095	10,366	16,461
58.	Implements and Machinery: Agricultural, Horticultural, and Viticultural ...	£	...	...	...	32,029	34,749	66,778
59.	India-rubber Goods	„	...	...	...	6,541	25,343	31,884
	Instruments, Musical—							
60.	Pianos	No.	203	693	896	12,715	16,954	29,669
61.	Other	£	...	...	...	288	6,488	6,776
	Iron and Steel—							
62.	Bar, Rod, etc.; Blooms, Slabs, etc.; Girders, Joists, etc.	cwt.	5,624	167,581	173,205	2,157	68,891	71,048
63.	Galvanised, Plate, and Sheet	„	35	182,260	182,295	22	151,805	151,827
64.	Pig and Scrap	„	...	128,048	128,048	...	21,402	21,402
65.	Jams and Jellies	lb.	4,723,757	80,079	4,803,836	56,734	1,474	58,208
66.	Jewellery	£	...	...	...	11,801	35,837	47,638
67.	Jute Goods, viz.: Bags and Sacks (Bran, Flour, Corn, Gunny, Ore, and Woolpack) .	„	...	...	...	2,258	62,693	64,951
68.	Lamps and Lampware	„	...	...	...	462	9,737	10,199
69.	Lead, Pig	cwt.	1,527	...	1,527	929	...	929

* Articles produced in places outside the Commonwealth.

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Principal Imports during 1904, etc.—continued.

	Articles.	Imports during the Year 1904. Quantities. Australian origin.	Quantities. Oversea origin.*	Quantities. Total.	Values. Australian origin.	Values. Oversea origin.*	Values. Total.
					£	£	£
70.	Lead, Sheet and Pipe ... ... cwt.	3,087	2,956	6,043	2,368	2,164	4,532
71.	Leather ... ... £	...	...	...	30,274	9,121	39,395
72.	Linseed ... ...centals	112	1,290	1,402	82	666	748
73.	„ Cake and Oil Cake ... ... „	19,837	5,036	24,873	4,535	909	5,444
74.	Machines and Machinery (all kinds, except Agricultural, for which *see* "Implements") ... ... £	...	...	...	76,209	363,224	439,433
75.	Manures ... ... cwt.	63,094	187,891	250,985	16,296	27,452	43,748
76.	Matches and Vestas ... ... gross	30 140	129,943	30 130,083	19	12,583	12,602
	Meats—						
77.	Bacon and Hams ... ... lb.	3,571,170	158,296	3,729,466	124,388	5,973	130,361
78.	Preserved by cold process—Beef ... „	757,898 20,000	18,490	776,388 20,000	11,709	327	12,036
79.	Preserved by cold process, Game ... „	...	8	8	...	3	3
80.	„ „ Mutton & Lamb „	2,395,348	1,390,918	3,786,266	36,323	19,884	56,207
81.	„ „ Pork ... ... „	174,166	86,424	260,590	3,563	1,616	5,179
82.	„ „ Poultry ... „	82,033	4,765	86,798	3,040	187	3,227
83.	„ „ Rabbits & Hares „	257,882	3,300	261,182	2,866	39	2,905
84.	„ „ Other ... ... „	28,794	1,050	29,844	627	10	637
85.	Preserved, in tins ... ... „	3,083,205	279,895	3,363,100	76,408	11,480	87,888
	Metals, Manufactures of—						
86.	Dutiable ... ... £	...	...	...	32,201	160,251	192,452
87.	Free ... ... „	...	...	...	15,666	214,866	230,532

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88.	Milk, concentrated	lb.	596,563	...	596,563	10,057	...	10,057
89.	„ preserved	„	8,456	4,714,029	4,722,485	164	89,338	89,502
90.	Mustard	„	16,814	74,075	90,889	612	4,015	4,627
91.	Oils in bottle (except Cotton-seed) ...	doz.	250	19,942	20,192	62	2,616	2,678
	Oils, Bulk—							
92.	Castor	gal.	6	94,572	94,578	1	8,129	8,130
93.	Cocoanut	„	8,423	5,329	13,752	896	849	1,745
94.	Cotton-seed (or in bottle)	„	...	2,387	2,387	...	298	298
95.	Eucalyptus „	£	...	...	...	1,659	...	1,659
96.	Kerosene	gal.	...	1,467,587	1,467,587	...	39,570	39,570
97.	Olive	„	395	2,684	3,079	164	541	705
98.	All other	£	...	...	...	1,431	44,922	46,353
99.	Oilmen's Stores (dutiable)	„	...	...	...	63,427	53,105	116,532
100.	„ (free)	„	...	...	...	1,388	7,490	8,878
101.	Onions	cwt.	55,277	968	56,245	7,471	495	7,966
102.	Ores (exclusive of gold, the values of which must be shown under Gold uncoined)	£	...	...	...	6,129	158	6,287
103.	Paints, Colours, and Varnishes	„	...	...	...	1,580	24,724	26,304
	Paper—							
104.	Printing	„	...	...	...	...	36,894	36,894
105.	All other	„	...	...	...	2,109	39,778	41,887
106.	Pearlshell	cwt.	...	...	...	...	...	...
107.	Pickles and Sauces	doz.	53,886	gal. 6,310 41,425	gal. 6,310 95,311	10,183	14,064	24,247
108.	Potatoes	cwt.	306,866	5,921	312,787	35,312	1,359	36,671
109.	Railway material, including rails, etc. ...	£	...	...	...	1,977	150,849	152,826
110.	Salt, Rock	cwt.	...	1,605	1,605	...	97	97
111.	„ N.E.I.	„	35,063	6,173	41,236	3,510	428	3,938
112.	Sandalwood	„	...	...	...	...	...	...
113.	Shale, Kerosene	tons	...	...	...	...	...	...

* Articles produced in places outside the Commonwealth.

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Principal Imports during 1904, etc.—continued.

	Articles.		Imports during the Year 1904.					
			Quantities.			Values.		
			Australian origin.	Oversea origin.*	Total.	Australian origin.	Oversea origin.*	Total.
						£	£	£
114.	Silver—Bar, Ingot, etc.	oz.	...	...	...	...	...	...
115.	„ Lead	cwt.	...	...	...	...	...	...
116.	Skins—Hides	No.	...	...	...	...	...	...
117.	„ Rabbit and Hare	lb.	...	...	...	...	...	...
118.	„ Sheep	No.	...	...	...	...	...	...
119.	„ Other	£	...	...	...	...	...	...
120.	Soap	lb.	816,364	166,957	983,321	14,957	9,434	24,391
121.	Specie—Gold	£	...	...	...	...	...	...
122.	„ Silver	„	...	...	...	...	2,000	2,000
123.	„ Bronze	„	...	...	...	...	...	...
	Spirits—							
124.	Brandy	gal.	70 4,218	2,500 38,426	2,570 42,644	1,436	25,253	26,689
125.	Gin (including Schnapps, etc.)	„	281	42,860	43,141	117	12,456	12,573
126.	Rum	„	1,047	7,764	8,811	95	1,823	1,918
127.	Whisky	„	...	198,977	198,977	...	85,223	85,223
128.	Other	£	...	...	...	2,995	13,638	16,633
129.	Stearine	lb.	1,489,725	11,460	11,460 1,489,725	25,074	202	25,276
130.	Sugar	cwt.	187,807	26,884	214,691	165,986	21,531	187,517
131.	Tallow	„	510	16	526	476	8	484
132.	Tea	lb.	...	2,148,648	2,148,648	...	83,379	83,379
133.	Timber	£	...	...	...	6,064	131,358	137,422
134.	Tin, Ingots	cwt.	210	...	210	1,325	...	1,325
135.	„ Plates	boxes	...	4,176	4,176	...	2,669	2,669

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136.	Tobacco, manufactured	lb.	503,378	365,361	868,739	58,432	31,344	89,776
137.	„ unmanufactured	„	...	17,410	17,410	...	1,099	1,099
138.	„ Cigars	„	4,234	40 607	44,841	1,498	14,726	16,224
139.	„ Cigarettes	„	50,188	57,004	107,192	12,195	18,010	30,205
140.	„ Snuff	„	...	483	483	...	81	81
141.	Tools of Trade	£	...	...	...	1,572	46,926	48,498
142.	Tortoise-shell	lb.	...	...	...	...	...	...
143.	Turpentine	gal.	...	17,426	17,426	...	3,006	3,006
144.	Umbrellas, Parasols, etc.	£	...	...	...	2,630	4,359	6,989
	Vehicles—							
145.	Bicycles, etc.	£	...	...	...	7,745	13,023	20,768
146.	Motor	No.	1	44	45	173	9,086	9,259
147.	Other	£	...	...	...	5,237	9,322	14,559
	Wax—							
148.	Beeswax	lb.	1,389	100	1,489	80	9	89
149.	Vegetable	„	...	23,174	23,174	..	680	680
150.	Paraffin	„	32,405	62,164	94,569	472	851	1,323
	Wine, Fermented—							
151.	Sparkling	gal.	60	7,724	7,784	67	13,865	13,932
152.	Other	„	29,946	22,944	52.890	9,741	8,416	18,157
153.	Wool, greasy	lb.	...	...	...	...	...	...
154.	„ scoured and washed	„	...	...	...	...	...	...
155.	All other Articles	£	...	...	...	107,595	497,458	605,053
	Total Imports	£				2,327,490	4,345,090	6,672,480

* Articles produced in places outside the Commonwealth.

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Notes on Exports.

The principal exports of the State are gold, timber, wool, pearls and pearlshell, sandalwood, hides, skins of various kinds, silver, tin, and copper.

The value of gold produced in the State, and exported during the past five years, shows an annual expansion as follows:—

	1900.	1901.	1902.	1903.	1904.
	£	£	£	£	£
Raw gold ...	3,799,116	3,941,797	3,318,958	4,061,767	3,943,908
Gold coin ...	1,750,763	2,807,841	4,149,869	4,556,192	4,563,537
Total ...	5,549,879	6,749,638	7,468,827	8,617,959	8,507,445

These figures show an increase of more than 53 per cent. in four years.

The exact amount of sovereigns minted in Western Australia and exported from the State cannot be ascertained. It may, however, be presumed that practically the whole of the gold coin exported is local mintage.

The timber export for the year 1903 proved a "record one," being valued at £620,012, as compared with £74,804 in 1894, £572,354 in 1901, and £500,533 in 1902. Of the 1903 export, 83,815,525 sup. feet were jarrah, valued at £558,770, and 9,115,200 sup. feet karri, valued at £60,768, the nature of the remainder, valued at £474, being unspecified in the Customs returns. The distribution of this export is world-wide, shipments being made to every continent. A very large proportion is sent to the United Kingdom, where it is chiefly used in street paving. Extensive shipments are also made for use in the construction of harbours, jetties, bridges, etc., as also for railway sleepers and for other engineering purposes, for which strength and durability are required, to South Australia, South Africa, India, New Zealand, the Philippine Islands, Ceylon, and other countries.

That Western Australia is at present by far the most important timber exporter in Australasia may be seen from the following figures, which furnish for each of the States of the Commonwealth and for New Zealand the total export of timber grown in the State from which exported, and the value per head of mean population during 1903:—

	States, etc.	Value of timber exported.	Value per head.
		£	£ s. d.
Commonwealth	Western Australia	657,925*	2 19 6
	New South Wales	158,305	0 2 3
	Victoria	17,258	0 0 3
	Queensland	43,379	0 1 8
	South Australia	3,820	0 0 3
	Tasmania	42,837	0 4 10
New Zealand		243,764	0 5 11

* Including £37,913, value of sandalwood exported.

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The figures for the 1904 timber export of Western Australia show a still further increase, the total value being £654,949.

The wool shipped from the various ports, for the last three years, has been as follows :—

Port.	1901.	1902.	1903.
	lbs.	lbs.	lbs.
Fremantle	2,454,891	2,348,498	1,878,065
Bunbury	194,784	182,233	151,005
Albany	1,253,624	931,320	977,072
Geraldton	3,569,638	2,883,168	2,176,353
Carnarvon	1,873,482	1,833,108	2,442,887
Broome	6,630	5,600	4,432
Cossack	1,583,234	1,659,123	1,494,348
Derby	1,009,928	1,151,231	1,068,515
Onslow	732,271	1,344,970	1,129,878
Esperance	135,669	...	218,220
Eucla	...	2,720	560
Port Hedland ...	764,812	590,300	960,469
Totals ...	13,578,963	12,932,271	12,501,804

Consequent on the export of wool occasionally taking place during the early part of the year succeeding that in which it was produced, the figures above given cannot be taken as accurately representing the clip for the year specified. Should a fair conception of the yearly produce of the wool from the different districts be desired, the average export of the ports of those districts for the three years might be taken. The total wool export for 1904 was valued at £419,395.

With regard to pearlshell, the remarkable increase in the export since 1897 is a matter of considerable importance to this State. Some years ago the industry was a thriving and profitable one, and furnished employment for a large number of men. Owing to the depreciation in the price of shell and denudation of many of the banks, however, numbers of vessels left this coast for the more recently discovered pearling grounds on the Northern coast of Australia. In consequence of the removal of large quantities of pearling plant and labour, and a steadily falling market, pearling operations, till 1897, went from bad to worse. In that year, however, a marked improvement was experienced in the London market, the result being that during the subsequent years the prices not only returned to their former profitable figure, but in 1901 the value of this export rose to £105,730, advancing in 1902 to £138,689, and in 1903 to £174,322, and the business being prosecuted with all the vigour and energy which characterised it in its earlier days.

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The first shipment of sandalwood was made in the year 1845 up to the end of 1903 the total export of sandalwood amounted in value to £1,848,635, the "record year" being 1882, when sandalwood, valued at £96,050, was shipped out of the State.

The value of skins exported during the five years, 1899 to 1903, was as follows:—

—	1899.	1900.	1901.	1902.	1903.
	£	£	£	£	£
Sheep skins	43,816	38,563	40,362	49,830	53,057
Kangaroo skins	16,155	13,299	16,549	22,729	50,645
Opossum skins	1,967	2,237	7,311	14,794	
Not otherwise enumerated ...	60	10	5	21	
Totals	61,998	54,109	64,227	87,374	103,702

For 1904 the total value was £102,068.

Hides, in 1904, were exported to the value of £24,204.

The exports of guano from the Abrolhos Islands during the year 1903 were valued at £2,034. This does not, however, comprise the whole output, considerable quantities of this valuable fertiliser being utilised locally.

Although the general export of guano was prohibited in 1897, Messrs. Broadhurst, Macneil & Co., under a license granted in 1895, and extending to the end of the year 1904, were still, in 1903, able to export the article from the Abrolhos Islands.

The shipments of copper and tin, of which minerals there are large deposits in the State, still continue to be important factors in the exports of Western Australia, whilst during recent years a considerable amount of silver has been exported, being obtained as a by-product in connection with the gold production of the State.

Although wheat does not appear in the 1903 list of exports, it may be safely predicted that in the near future the rapidly increasing production of the State will cause this most important of the cereals to occupy a place among the principal articles of export. On the 23rd August, 1904, the s.s. "Essex" left Fremantle, taking from Western Australia 262 tons of locally-grown wheat, to be placed on the English market. Messrs. Dalgety and Co., Ltd., foreseeing that the State is likely in the near future to become a regular exporter of wheat, first conceived the idea of shipping the parcel with a view to placing before the English buyers a thoroughly representative sample of the grain which West Australian soil will

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produce. The result of the shipment, which is the first of any magnitude to leave the State, was also intended to serve as an indication of the probable cost under present conditions of shipping wheat from Western Australia to the United Kingdom. The peculiar circumstances of the case appeared to render desirable a practical demonstration of the possibility of establishing on a satisfactory basis an export trade in wheat, and the knowledge resulting from this venture should therefore be of very great benefit to local farmers. The consignment, which was carefully selected, and consisted of a number of parcels from various growers, was said to be thoroughly representative of what the soil of Western Australia will produce in large quantities.

Customs Revenue.

Under Section 95 of the Commonwealth Constitution Act, it was enacted that "the Parliament of the State of Western Aus-"tralia may, during the first five years after the imposition of "uniform duties of customs, impose duties of Customs on goods "passing into the State and not originally imported from beyond "the limits of the Commonwealth, such duties to be collected by "the Commonwealth." Any duty so imposed on any goods was not, however, to exceed during the first of those years the duty chargeable on the goods under the law of Western Australia in force at the time of imposition of uniform duties, nor to exceed during the second, third, fourth, and fifth of those years respectively, four-fifths, three-fifths, two-fifths, and one-fifth of such latter duty, and all duties imposed under the above section were to cease at the expiration of the fifth year after the imposition of uniform duties. If at any time, also, during the five years the duty on any goods under this section was higher than the duty imposed by the Commonwealth on the importation of the like goods, then such higher duty was to be collected. Accordingly, at the present time, goods produced within the Commonwealth are dutiable under the State Tariff only, whilst Imports of British and Foreign origin are dutiable under the Federal Tariff, and the duties, with the following exception, are collected under its provisions, namely, when the State rate of duty on goods of British or Foreign origin is higher than the Federal rate, the higher duty is collected.

During 1903 a total of £966,608 was collected in Customs duties under the Federal Tariff, whilst the special duties amounted to £206,040.

The following table, for the years 1898 to 1903, shows the Customs Revenue collected at each port of the State, the Rebates, and the Excise Revenue. It will be seen that the Customs Revenue collected in Perth and Fremantle increased very rapidly until the year 1902, when the total for the latter stood as high as £916,348, and for the former £320,740. In 1903, however, a considerable

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decline was experienced, the figures for that year being respectively £757,098 and £286,625.

Ports, etc.	1898.	1899.	1900.	1901.	1902.	1903.
	£	£	£	£	£	£
Albany	36,623	28,816	28,232	26,404	29,243	25,106
Broome	4,911	5,625	7,607	8,273	14,277	19,112
Bunbury	13,925	13,950	11,428	9,517	11,572	13,262
Busselton	3,266	3,607	1,575	2,979	2,986	1,720
Carnarvon	3,693	2,554	3,059	3,121	3,934	3,472
Cossack	12,966	9,906	10,028	7,344	6,234	6,295
Derby	2,435	1,719	1,658	1,917	1,834	1,803
Dongara	1,785	1,313	1,217	1,066	1,192	918
Esperance	10,375	5,484	4,308	2,032	1,257	1,409
Fremantle	626,385	*559,942	628,965	706,879	916,348	757,098
Geraldton	49,921	45,457	46,468	50,213	47,527	41,753
Onslow	1,828	1,451	1,727	1,574	1,651	1,509
Perth	147,769	165,934	207,960	239,278	320,740	286,625
Port Hedland	...	...	110	4,350	6,466	4,842
Wyndham	1,274	1,700	3,255	1,196	1,278	1,283
Parcel Post, etc.	...	...	...	...	6,734	6,441
	917,156	847,458	957,597	1,066,143	...	...
Rebates	2,484	1,900	2,092	3,030	...	...
Total Customs ...	914,672	845,558	955,505	1,063,113	1,373,273	1,172,648
Excise	10,211	26,757	31,665	39,676	72,193	73,566
Miscellaneous ...	...	...	...	...	3,588	17,144
Total Revenue	924,883	872,315	987,170	1,102,789	1,449,054	1,263,358

* Including £473 collected at Coolgardie during the Exhibition.

For the year 1904, the total Customs Revenue amounted to £1,025,164, and the Excise Revenue to £100,682.

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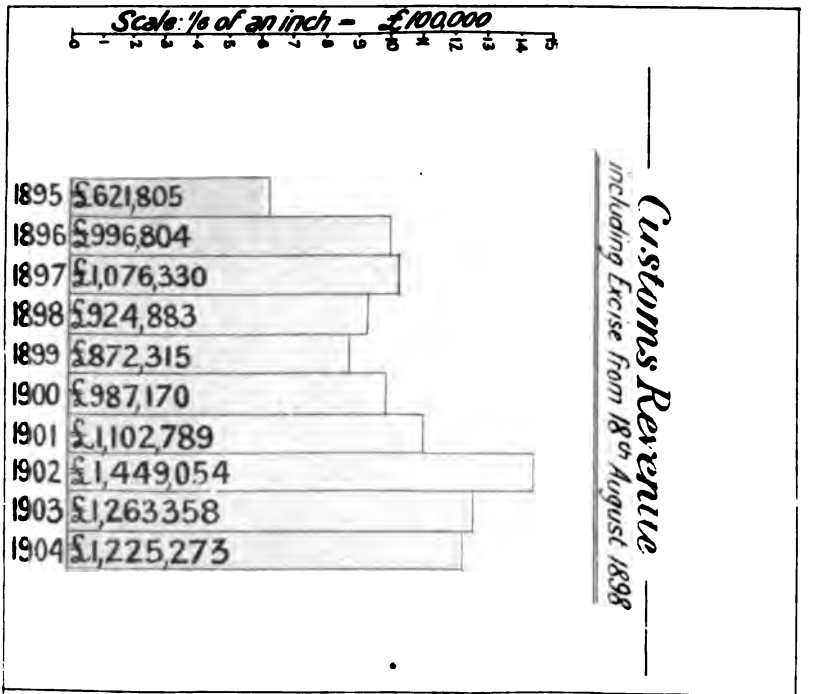

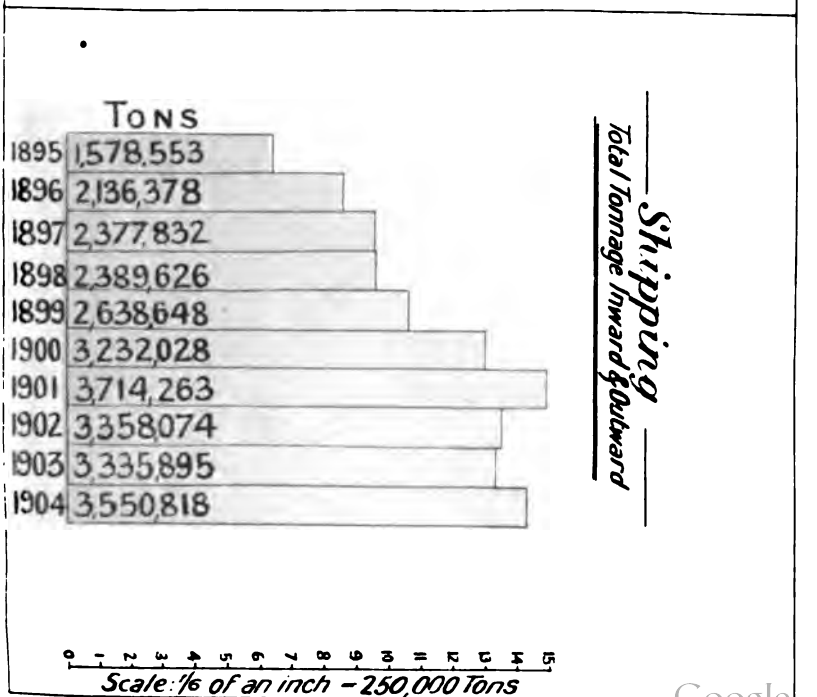

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2.—SHIPPING.

A glance at the number of vessels engaged in the external commerce of the State during the decade 1894-1903 * reveals a nearly two-fold increase, whilst the more than twofold increase in their tonnage points to the fact that vessels of a larger and improved type are now regularly engaged in the shipping trade of the State. The temporary abnormal increase which culminated in 1901 had, it is perhaps hardly necessary to point out, its origin in the transport requirements of the South African war.

Year.	Entered.		Cleared.		Total.	
	Vessels.	Tons.	Vessels.	Tons.	Vessels.	Tons.
1894	372	675,775	349	653,303	721	1,329,078
1895	485	814,368	433	764,185	918	1,578,553
1896	768	1,105,907	683	1,030,471	1,451	2,136,378
1897	721	1,196,760	707	1,181,072	1,428	2,377,832
1898	633	1,199,894	631	1,189,732	1,264	2,389,626
1899	685	1,333,052	668	1,305,596	1,353	2,638,648
1900	769	1,625,696	747	1,606,332	1,516	3,232,028
1901	884	1,842,236	901	1,872,027	1,785	3,714,263
1902	763	1,671,169	765	1,686,905	1,528	3,358,074
1903	708	1,673,154	703	1,662,741	1,411	3,335,895

The following tables show the share of the shipping which fell to each of the principal ports during each year of the same period.

Year.	Albany.	Broome.	Bunbury.	Busselton.	Cossack.	Derby.	Esperance.	Fremantle.	Geraldton.	† Other ports.	Total.
Number of Vessels entered.											
1894	271	2	...	10	...	16	5	63	4	1	372
1895	303	...	1	12	1	19	33	106	8	2	485
1896	398	4	4	11	2	14	111	212	12	...	768
1897	436	4	...	10	5	11	67	177	9	2	721
1898	387	7	4	14	1	18	16	184	2	...	633
1899	400	9	33	15	1	21	3	197	4	2	685
1900	454	12	33	16	...	10	3	234	4	3	769
1901	411	16	50	15	1	8	2	373	5	3	884
1902	248	29	49	7	1	5	1	410	4	9	763
1903	176	25	97	...	...	9	4	370	1	26	708
Number of Vessels cleared.											
1894	240	2	...	11	4	15	5	65	7	...	349
1895	295	2	...	9	6	16	30	71	3	1	433
1896	357	6	8	18	...	13	107	144	30	...	683
1897	396	3	...	12	6	12	66	191	18	3	707
1898	360	2	2	19	6	16	14	207	5	...	631
1899	372	11	27	16	1	15	3	216	4	3	668
1900	420	7	44	8	1	9	2	247	6	3	747
1901	363	18	50	19	1	7	4	426	9	4	901
1902	221	12	63	10	3	13	1	429	7	6	765
1903	133	14	104	...	1	13	4	402	5	27	703

* The figures for 1904 are :—Entered, 651 vessels, tonnage 1,773,632; cleared, 655 vessels, tonnage 1,777,186; total vessels 1,306, tonnage 3,550,818. † Carnarvon, Eucla, Onslow, Wyndham, and Hamelin.

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Year.	Albany.	Broome.	Bunbury.	Busselton.	Cossack.	Derby.	Esperance.	Fremantle.	Geraldton.	*Other Ports.	Total.
Tonnage of Vessels entered.											
1894	585,195	74	...	5,022	...	17,452	2,520	62,600	2,873	39	675,775
1895	648,439	...	498	9,641	589	19,846	7,452	115,289	10,542	2,072	814,368
1896	800,757	3,824	4,928	7,737	62	15,419	30,004	232,299	10,877	...	1,105,907
1897	936,951	4,687	...	5,605	4,072	9,527	16,038	212,099	7,760	21	1,196,760
1898	865,581	7,486	2,541	9,455	89	21,586	5,830	286,230	1,096	...	1,199,894
1899	921,680	7,900	26,593	9,926	1,270	20,216	751	342,715	1,620	381	1,333,052
1900	1,032,435	11,982	29,594	15,595	...	10,131	196	522,152	3,014	597	1,625,696
1901	866,374	14,401	39,720	15,181	1,140	7,970	457	894,183	2,444	366	1,842,236
1902	540,910	24,326	43,640	4,714	1,140	5,813	328	1,045,170	1,946	3,182	1,671,169
1903	465,175	22,909	115,804	...	...	13,302	757	1,044,000	602	10,605	1,673,154
Tonnage of Vessels cleared.											
1894	553,212	801	...	5,776	4,402	15,148	2,117	66,689	5,158	...	653,303
1895	640,129	171	...	7,563	7,724	16,224	9,688	76,765	4,885	1,036	764,185
1896	748,206	6,188	7,796	10,054	...	14,880	28,926	177,074	37,347	...	1,030,471
1897	885,304	3,094	...	8,174	7,138	11,365	19,301	225,073	19,902	1,721	1,181,072
1898	832,552	2,409	1,315	13,438	3,974	18,554	4,687	308,729	4,074	...	1,189,732
1899	871,219	9,622	23,809	11,101	641	15,800	816	368,890	3,260	438	1,305,596
1900	994,435	7,330	40,874	9,776	554	9,870	118	536,657	6,266	452	1,606,332
1901	801,333	15,718	48,222	18,271	1,140	7,228	498	970,012	8,446	1,159	1,872,027
1902	527,562	11,796	59,507	6,422	3,550	15,176	206	1,050,201	7,766	4,719	1,686,905
1903	412,049	18,133	120,154	...	1,140	19,284	757	1,073,454	5,546	12,224	1,662,741

* Carnarvon, Eucla, Onslow, Wyndham, and Hamelin.

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During the first five years of the decennium it will be observed that the recorded entries exceeded the recorded clearances by no less than 176 vessels, the years 1895 and 1896 being responsible for excesses of 52 and 85 respectively; similarly, as regards the tonnage, a total excess of 173,941 tons was experienced, the two years above referred to accounting for 50,183 for 1895, and 75,436 for 1896. For the last five years of the period under review an excess of entries over clearances, both in number and tonnage, is still in evidence, though the preponderance of entries is not nearly so extensive, the figures being 25 as regards number and 11,706 as regards tonnage.

The excess of entries over clearances must, in the ordinary course of events, be due to one or more of the following causes:—

(1.) Retention of vessel for local coastal trade.

(2.) Retention of vessel for use as hulk, etc.

(3.) Loss by shipwreck or otherwise after entry and before final clearance.

(4.) Breaking up of vessel.

Since, in the case of this State, the number of instances coming under these headings is not by any means sufficiently large to account for the preponderance above mentioned, it is evident, at all events for the first five years of the period, owing possibly to the heavy strain experienced by the Customs Department at the time of the gold rush, that inaccuracies have occurred in the figures recorded, particularly in the case of those relating to vessels cleared. So far, however, as the last five years are concerned, the figures appear to be more accurate and capable of possible explanation.

From the figures given in the foregoing tables it is evident that the increase in the totals has occurred mainly in the South-Western Ports, and more particularly Fremantle; Albany, notwithstanding the loss of the English, French, and German mail steamers, has nevertheless maintained a fair average, being still the port of call for the steamers trading to South Africa. Fremantle has progressed phenomenally since the completion of her harbour works, and it will be noted that the tonnage has increased in a far greater proportion even than the number of vessels, a natural consequence of the calling at that port of the mail steamers and other vessels of large size. During 1903, the total shipping, that is entries and

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clearances combined, at each port, distinguishing between steamers and sailing vessels, was as follows:—

Ports.	Steam.		Sail.	
	Number.	Tons.	Number.	Tons.
Albany	286	847,554	23	29,670
Broome	30	46,789	9	253
Bunbury	37	63,397	164	172,561
Cossack	1	1,140	...	...
Derby	22	32,586	...	...
Esperance	...	...	8	1,514
Eucla	7	1,560	4	312
Fremantle	668	2,012,256	104	105,198
Geraldton	3	4,326	3	1,822
Hamelin	...	...	23	19,950
Wyndham	19	1,007	...	...
Total ...	1,073	3,004,615	338	331,280

The above figures do not, however, give a correct idea of the relative importance of the various ports in so far as the shipping business is concerned, owing to the fact that all purely local trade is excluded, whilst in the case of external traders the particulars are tabulated for the ports of arrival and departure only, thus swelling the returns of ports of entry and exit to the detriment of intermediate ports of call. Thus, in the case of a vessel from the Eastern States entering at Albany, calling at each port on the coast thence to Geraldton, and clearing eventually from Albany on the return journey, the figures tabulated would be one entry and one clearance at the port of Albany only, no credit being given to any of the intermediate ports, even, say, that of Fremantle, to which probably the greater bulk of the cargo would be actually consigned.

The following table gives a concise summary of the business done at each Port of the State during the year 1903, as recorded in the Customs Returns, the Ports being arranged in the order of importance according to the amount of Revenue collected:—

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Port, etc.	Customs Revenue (Duties).	Trade.			Shipping Entered and Cleared.					
					Steam.		Sailing.		Total.	
		Imports.	Exports.	Total.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.
Fremantle	757,098	4,686,613	8,411,584	13,098,197	668	2,012,256	104	105,198	772	2,117,454
Perth	286,625	1,596,328	17,789	1,614,117	...	...	...	...	...	...
Geraldton	41,753	138,668	109,993	248,661	3	4,326	3	1,822	6	6,148
Albany	25,106	159,336	793,791	953,127	286	847,554	23	29,670	309	877,224
Broome	19,112	55,696	196,245	251,941	30	40,789	9	253	39	41,042
Bunbury	13,262	63,621	448,510	512,131	37	63,397	164	172,561	201	235,958
Cossack	6,295	13,704	55,158	68,862	1	1,140	...	...	1	1,140
Port Hedland	4,842	8,992	54,347	63,339	...	...	...	...	...	...
Carnarvon	3,472	6,766	85,540	92,306	...	...	...	...	...	...
Derby	1,803	3,772	38,942	42,714	22	32,586	...	...	22	32,586
Busselton and Hamelin ...	1,720	8,232	44,082	52,314	...	...	23	19,950	23	19,950
Onslow	1,509	3,173	56,475	59,648	...	...	...	...	...	...
Esperance and Eucla ...	1,409	20,767	12,188	32,955	7	1,560	12	1,826	19	3,386
Wyndham	1,283	3,181	88	3,269	19	1,007	...	...	19	1,007
Dongara	918	1,073	...	1,073	...	...	...	...	...	...
Parcel Post, etc.	6,441	...	...	...	...	...	...	...	...	...
Total	1,172,648	6,769,922	10,324,732	17,094,654	1,073	3,004,615	338	331,280	1,411	3,335,895

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The foregoing figures furnish an illustration of the point previously mentioned in connection with the records of shipping entered and cleared at the various ports of the State. Thus, although Albany shows a total tonnage of 877,224 entered and cleared, or considerably more than one-third of the corresponding tonnage for Fremantle, which was 2,117,454, the value of the total trade of the former port is little more than 7 per cent. of that of the latter. Further, such ports as Port Hedland, Carnarvon, Onslow, and others, although doing a considerable external trade, fail to appear in the shipping returns, owing to the fact that they were not, during the year, ports of entry or clearance.

A comparison of the nationalities represented in Western Australian shipping is afforded by the following tables:—

Year.	Number o Vessels Entered and Cleared.							
	British.	German.	French.	Swedish.	Norwegian.	American.	Other.	Total.
1894 ...	624	19	48	9	18	...	3	721
1895 ...	826	9	48	6	19	4	6	918
1896 ...	1,248	39	49	13	71	13	18	1,451
1897 ...	1,190	88	53	...	68	12	17	1,428
1898 ...	989	105	58	11	92	...	9	1,264
1899 ...	977	141	52	9	137	10	27	1,353
1900 ...	1,164	129	52	14	111	12	34	1,516
1901 ...	1,355	143	54	17	138	25	53	1,785
1902 ...	1,116	146	54	20	140	13	39	1,528
1903 ...	1,029	114	61	13	151	13	30	1,411

Year.	Tonnage of Vessels Entered and Cleared.							
	British.	German.	French.	Swedish.	Norwegian.	American.	Other.	Total.
1894	1,159,661	12,623	137,544	5,952	11,460	...	1,838	1,329,078
1895	1,406,185	6,564	140,409	4,682	12,287	2,308	6,118	1,578,553
1896	1,815,665	88,510	137,120	6,871	51,990	9,143	27,079	2,136,378
1897	1,897,852	257,126	148,458	...	48,311	8,648	17,437	2,377,832
1898	1,839,940	314,419	158,173	9,725	60,109	...	7,260	2,389,626
1899	1,970,263	368,351	148,124	7,997	102,470	12,436	29,007	2,638,648
1900	2,538,570	389,042	148,488	15,635	87,211	12,571	40,511	3,232,028
1901	2,943,284	421,914	146,712	12,386	105,446	21,478	63,043	3,714,263
1902	2,530,031	489,997	145,662	15,546	121,234	11,727	43,877	3,358,074
1903	2,559,942	414,225	160,365	9,845	142,455	11,870	37,193	3,335,896

A notable feature of these figures is the increase of German and Norwegian shipping, the former dating more particularly from the advent of the German mail steamers, and the latter being due in large measure to the increased activity in the timber trade, for which these vessels are eminently suited.

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Of the 1,029 vessels of British nationality recorded for the year 1903, a total of 484 were owned in the Commonwealth of Australia, representing a tonnage of 772,725.

It is also interesting to compare, in the following figures for 1903, the proportion of steamers and sailing vessels entered and cleared for the various nationalities:—

Nationality.	Steamers.		Sailing Vessels.	
	Number.	Tonnage.	Number.	Tonnage.
Commonwealth	456	767,182	28	5,543
Other British	471	1,695,002	74	92,215
American	...	...	13	11,870
Danish	...	...	2	1,892
Dutch	...	...	5	7,288
French	55	151,703	6	8,662
German	91	390,728	23	23,497
Italian	...	...	8	9,620
Norwegian	...	...	151	142,455
Russian	...	...	15	18,393
Swedish	...	...	13	9,845
Total	1,073	3,004,615	338	331,280

It will be seen that the number of Norwegian sailing vessels, and their aggregate tonnage, exceeded those of the Commonwealth and other British sail combined. It should be noted that a large majority, especially of the Norwegian sailers, entered the ports in ballast, while but a small proportion left in that condition, as is illustrated by the following table, which also gives the figures relating to steamers in this connection:—

Nationality.	Steamers.				Sailing Vessels.			
	Entered.		Cleared.		Entered.		Cleared.	
	With Cargo.	In Ballast.	With Cargo.	In Ballast.	With Cargo.	In Ballast.	With Cargo.	In Ballast.
Commonwealth	217	1	213	25	11	9	6	2
Other British ...	223	19	210	19	19	18	30	7
American ...	...	...	...	...	6	...	1	6
Danish ...	...	...	...	...	...	1	1	...
Dutch	...	...	...	...	2	1	2	...
French ...	27	...	28	...	2	1	3	...
German ...	46	...	45	...	4	8	9	2
Italian ...	...	...	...	...	3	2	2	1
Norwegian ...	...	...	...	...	11	64	75	1
Portuguese ...	...	...	...	...	...	...	...	...
Russian ...	...	...	...	...	1	6	8	...
Swedish ...	...	...	...	...	...	6	7	...
Total ...	513	20	496	44	59	116	144	19

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To what extent Commonwealth and other British vessels took part in British and foreign trade, and *vice versa*, may be seen from the following figures relating to the number of vessels—Commonwealth, other British, or foreign—arriving from, and departing for, British, Commonwealth, or foreign ports :—

Countries from or to which.	Steamers belonging to						Sailing Vessels belonging to					
	Common-wealth.		Other British Countries.		Foreign Countries.		Common-wealth.		Other British Countries.		Foreign Countries.	
	With Cargo.	In Ballast.	With Cargo.	In Ballast.	With Cargo.	In Ballast.	With Cargo.	In Ballast.	With Cargo.	In Ballast.	With Cargo.	In Ballast.
ENTERED.												
United Kingdom	1	...	76	4	...	...	...	...	7	...	7	...
Commonwealth	181	1	113	3	16	...	9	9	...	1	2	3
New Zealand ...	...	...	4	...	...	...	...	...	1	...	...	...
Other British Possessions ...	34	...	10	12	...	...	2	...	...	14	1	58
Foreign Countries	1	...	20	...	57	...	1	...	11	3	19	28
Total ...	217	1	223	19	73	...	11	9	19	18	29	89
CLEARED.												
United Kingdom	...	...	66	...	...	...	...	...	9	...	27	...
Commonwealth	180	23	93	14	31	...	4	1	...	6	...	8
New Zealand ...	2	1	2	4	...	...	1	...	1	...	1	...
Other British Possessions ...	30	1	46	...	1	...	1	...	11	1	38	...
Foreign Countries	1	...	3	1	41	...	...	1	9	...	42	2
Total ...	213	25	210	19	73	...	6	2	30	7	108	10

From the above table it appears that most of the Western Australian shipping in Commonwealth vessels was confined to the Commonwealth, and that very little extended to foreign countries or to the United Kingdom.

An idea of the aggregate numbers of the crews employed on the steam and sailing vessels which entered and cleared Western Aus-

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tralian ports during 1903, either with cargoes or in ballast, may be obtained from the following figures:—

Vessels.		Entered. No.	Entered. Tonnage.	Entered. Crews.	Cleared. No.	Cleared. Tonnage.	Cleared. Crews.
Steam ...	with cargoes	513	1,466,084	55,580	496	1,420,790	54,832
	in ballast ...	20	37,357	786	44	80,384	1,524
	Total ...	533	1,503,441	56,366	540	1,501,174	56,356
Sailing ...	with cargoes	59	57,542	925	144	142,603	2,190
	in ballast ...	116	112,171	1,715	19	18,964	290
	Total ...	175	169,713	2,640	163	161,567	2,480
GRAND TOTAL ...		708	1,673,154	59,006	703	1,662,741	58,836

An approximate comparison of the shipping figures of Western Australia with those of the other States of the Commonwealth and of New Zealand, for 1903, is obtainable from the following table:—

State.	Entered. Vessels.	Entered. Tonnage.	Cleared. Vessels.	Cleared. Tonnage.	Entered. Steam Tonnage.	Entered. Sailing Tonnage.	Cleared. Steam Tonnage.	Cleared. Sailing Tonnage.
	No.		No.					
West'rn Austr'lia	708	1,673,154	703	1,662,741	1,503,441	169,713	1,501,174	161,567
New South Wales	3,379	4,501,731	3,386	4,503,670	3,721,225	780,506	3,686,354	817,316
Victoria .	2,204	3,400,298	2,253	3,448,566	3,184,511	224,777	3,230,656	217,910
Queensland	727	902,670	726	895,785	*a* 902,670	*a*	*a* 895,785	*a*
South Australia *b*	1,112	2,157,961	1,085	2,122,920	2,005,268	152,693	1,980,056	142,873
Tasmania	928	938,371	927	935,802	861,570	77,001	860,965	74,837
Commonwealth	9,058	13,583,175	9,109	13,569,493	12,178,685	1,404,690	12,154,990	1,414,503
New Zealand ..	617	1,102,064	608	1,113,065	990,539	111,725	1,000,084	113,081
Australasia ...	9,675	14,685,239	9,708	14,682,658	13,168,824	1,516,415	13,155,074	1,527,584

a Sailing included under Steam. *b* Including Northern Territory.

If they are to be used for comparative purposes, however, an explanation is necessary in connection with these figures, namely, that whilst they exclude the local coastal trade, all vessels engaged in the Interstate traffic are included, whilst the European mail steamers belonging to the P. and O., Orient, Messageries, N.D.L., and other lines which make Fremantle or Albany ports of call, both on their inward and outward voyages to and from the Eastern States, are in this State counted twice over as entered and cleared.

It has to be taken into account, therefore, in comparing our own figures with those of the other States of the Commonwealth, that, whilst New South Wales may be regarded as the terminus of the voyage both in the case of the Interstate steamers and the European liners, and therefore only counts them once in and once out, the

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intermediate States of Victoria and South Australia count the same vessels twice coming and twice going. In the case of Western Australia, Fremantle being the port of arrival in and departure from the Commonwealth of the European mail steamers, the dual count takes place here also as far as these vessels are concerned; but since, as regards an Interstate vessel, a Western Australian port is necessarily the terminus of the journey, such vessel is, for each voyage, counted only once in at its port of arrival and once out at its port of departure. Taking, therefore, only the Interstate and mail vessels, to obtain a fair comparison of the shipping figures of the State referred to, New South Wales would have to double both her Interstate and European mail tonnage, whilst Western Australia would have to double her Interstate figures.

Western Australian Vessels.

The number and tonnage of steam and sailing vessels on the register of the State on the 31st December, 1903; of those added to or struck off the register during the year 1904; and of those remaining on the register on the 31st December, 1904, may be seen from the following statement:—

Details.	Steam Vessels.		Sailing Vessels.		Total.	
	Vessels. No.	Net Tonnage.	Vessels. No.	Net Tonnage.	Vessels. No.	Net Tonnage.
Upon the register, 31st December, 1903	36	13,548	288	8,064	324	21,612
Details of vessels added—						
Vessels registered for the first time...	1	4	41	500	42	504
Vessels registered *de novo*	...	...	...	...	...	...
Vessels purchased from foreigners ...	...	...	1	991	1	991
Vessels transferred from other ports	2	125	4	206	6	331
Total vessels added	3	129	46	1,697	49	1,826
Details of vessels struck off—						
Vessels wrecked, foundered, abandoned at sea, destroyed by fire, or otherwise missing	...	...	8	1,470	8	1,470
Vessels sold to foreigners	1	554	...	...	1	544
Total vessels deducted ...	1	554	8	1,470	9	2,024
Total remaining on the register on the 31st December, 1904	38	13,123	326	8,291	364	21,414

From the above table it will be seen that during the year 1904 a total of 49 vessels, of an aggregate tonnage of 1,826 tons, were added to the register, most of these having been newly built in the State; whilst nine vessels, of an aggregate tonnage of 2,024 tons, were struck off the register, eight having been lost and one sold. The increase in the numbers of steam and sailing vessels during

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the past ten years may be seen from the following table, which relates to vessels remaining on the register on the 31st December of each year:—

Year.	Steam.		Sailing.		Total.	
	Number.	Tons.	Number.	Tons.	Number.	Tons.
1895	11	3,504	144	4,770	155	8,274
1896	12	3,563	132	4,550	144	8,113
1897	18	3,898	133	5,812	151	9,710
1898	28	5,551	133	5,799	161	11,350
1899	30	5,442	135	6,653	165	12,095
1900	29	5,249	150	7,268	179	12,517
1901	30	5,708	161	6,405	191	12,113
1902	30	5,708	197	6,811	227	12,519
1903	36	13,548	288	8,064	324	21,612
1904	38	13,123	326	8,291	364	21,414

A considerable increase in the number and tonnage of vessels on the register took place in 1903, the figures advancing from 227 to 324, and from 12,519 to 21,612 respectively. In 1904 the number of vessels increased, but their aggregate tonnage showed a slight falling off.

Of the vessels on the register on the 31st December, 1904, there were 346 of wood, with an aggregate tonnage of 8,667; nine were iron (tonnage 1,874), and nine were steel (tonnage 10,873). The registration of vessels is effected at Fremantle.

Distances of Ports.

In the following statement are shown the approximate distances by sea, as supplied by the Chief Harbour Master, between the principal places on the coast of Western Australia, also between the more important Western Australian ports and the principal Australasian and some foreign ports:—

	Nautical Miles.		Nautical Miles.
Wyndham to Port Darwin ...	269	Fremantle to Adelaide *c* ...	1,363
Wyndham to Derby *a* ...	550	Do. „ Melbourne ...	1,693
Derby to Broome *b*	225	Do. „ Sydney ...	2,161
Broome to Port Hedland ...	265	Do. „ Brisbane ...	2,618
Port Hedland to Cossack ...	93	Do. „ Hobart ...	1,863
Cossack to Onslow	173	Do. „ Launceston ...	1,758
Onslow to Carnarvon	270	Do. „ Singapore ...	2,100
Carnarvon to Geraldton ...	278	Do. „ New York *d* ...	11,789
Geraldton to Fremantle ...	214	Do. „ San Francisco	8,703
Fremantle to Bunbury ...	86	Do. „ Colombo ...	3,115
Fremantle to Albany ...	343	Do. „ Aden	5,624
Albany to Esperance	210	Do. „ Port Said ...	6,517
Esperance to Eucla	407	Do. „ Naples ...	7,627
Albany to Adelaide *c*	1,020	Do. „ Marseilles *d* ...	9,699
Albany to Cape Town... ...	4,993	Do. „ London ...	9,945
Cape Town to London ...	6,300	Do. „ Cape Town ...	4,843

Outside Holothuria Bank. *b* Outside Lacepede Islands. *c* Semaphore. *d* Via Cape of Good Hope.

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3.—FREMANTLE HARBOUR TRUST.

(Information supplied by the Secretary of the Fremantle Harbour Trust.)

Harbour Trust Act.—Under the provisions of "The Fremantle Harbour Trust Act, 1902" (2° Edwardi VII., No. 17), which came into force on the 1st of January, 1903, power was conferred upon five Commissioners, to be a body corporate, with common seal, and power to hold land, and perpetual succession, and to be called the Fremantle Harbour Trust Commissioners, who were to be appointed by the Governor and hold office for a term of three years, to exercise the exclusive control of Fremantle Harbour, undertake the maintenance and preservation of all property vested in them under the Act, and provide such facilities, conveniences, and charges as may be most expedient for the trade of the port.

The Act vests in the Commissioners all lands of the Crown, harbour lights and beacons (excepting the lighthouses on Rottnest Island and at Woodman's Point), wharfs, docks, landing stages, piers, jetties, wharf sheds, and railways belonging to the Government, lying within the boundaries of the harbour, and, in addition, such other property as may be acquired by them or may be vested in them for the purposes of the Act; a schedule of all these properties to be made by the Government and the value determined and charged against the Commissioners.

All dues, etc., collected by the Commissioners are to be paid into the Treasury to the credit of an account to be called the "Fremantle Harbour Trust Account," which is to be annually charged with all fees, salaries, wages, and other expenditure paid or incurred by the Commissioners, the balance, subject to certain conditions, being carried to the Consolidated Revenue Fund, to be used by the Government in payment of interest on capital cost and sinking fund.

The Commissioners are further empowered to make regulations for the various purposes specified in the Act.

The Trust.—By Order in Council, dated 7th January, 1903, the Honourable the Colonial Secretary was appointed to be the Minister to administer the Act, the Honourable R. Laurie, M.L.C., Messrs. A. G. Leeds, C. Hudson, A. Sandover, and T. Coombe being at the same time appointed *Trust* Commissioners, the first-named to be Chairman of the Commission, and Mr. F. Stevens receiving his appointment of Secretary.

Regulations.—The first Regulations made by the Trust were approved of by the Governor in Council on the 24th July, and gazetted on the 13th August, 1903. The following officers of the Trust were therein enumerated:—a secretary, an accountant, the Engineer-in-Chief as Consulting Engineer, the Harbour Master, the Deputy Harbour Master and Surveyor, an Engineer Inspector,

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and a wharf manager and berthing master. The Regulations provide for the "Conduct of Business," "Control and Guidance of Officers appointed by the Commissioners, and the time and mode of accounting by officers for moneys coming into their hands," "Management and Conduct of Business at meetings of the Commissioners," "Payment of Revenue," "Contracts," "Signals," "Harbour Dues," "Pilotage and Charges therefor," "Exemption Certificates," "Exemption Flag," "Tonnage Dues," "Berthing Dues," "Wharfage," "Special Rates," "Navigation," "Berthing," "Vessels in Port," "Handling of Cargo," "Explosives and other Dangerous Materials," "Licensing of Vessels and Boats," "Watermen and Boatmen," "Baggage Porters," etc.

Additional and amending regulations were gazetted on 22nd January and 15th April, 1904.

The boundaries of the inner harbour of Fremantle were altered by *Gazette* notice of the 6th May, 1904.

Regulations and charges for the use of the slip at Rous Head were gazetted on May the 13th of the same year.

Further amendments of the Regulations were gazetted on May the 20th and November the 25th, 1904, and on January the 27th and February the 24th, 1905.

All coasting and interstate vessels whose masters hold certificates of exemption from pilotage are exempt from pilotage dues. Pilotage is otherwise compulsory for all vessels entering the port of Fremantle. In all removals within the Inner or Outer Harbour, pilotage is compulsory on all vessels whose masters do not fly the exemption flag. Outward pilotage is not compulsory, except in the case of the Challenger Passage, and from out the Inner Harbour. The Pilot Boarding Ground is situated five miles East of Bathurst Point, Rottnest Island.

Certificates for exemption from pilotage are granted to masters of coasting or interstate vessels owned or registered in one of the States of the Australian Commonwealth, and trading as interstate or coasting vessels, upon their passing the requisite examination, but holders of certificates issued prior to the date of the new Regulations continue to retain the privileges notwithstanding the trade the vessel may be engaged in. All members of the Fremantle Pilot Service have to undergo half-yearly medical examinations to test their general health, their eyesight, and their ability to distinguish colours.

Pilot Service.—One of the first matters taken in hand by the Trust on its appointment was the re-organisation of the Pilot Service, and on the 1st August, 1903, the sea pilot station on Rottnest Island was abolished, and arrangements were made for the whole service to be worked from the port of Fremantle, it being proved that the situation of the pilot station on the island was liable to tempt vessels to approach it too closely looking for a pilot, and so get into dangerous water. By the new system the passage into Gage Roads, South of Rottnest, was closed to all vessels whose

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masters do not hold exemption certificates. In rounding Rottnest vessels are, on no pretence whatever, to approach nearer than three miles to the island, but are to always keep in clear open water, with sufficient sea room to work in. The new steam pilot lifeboat "Lady Forrest" arrived in time to be commissioned for the change in the service, and on her being got to work the steam tug "Pelican," which had been working the island station, was placed on the slip and thoroughly overhauled and then handed back to the Public Works Department, to which she belonged. The "Lady Forrest" has proved herself to be quite competent of doing the work imposed upon her. The pilot "boarding ground" is situated five miles east of Bathurst Point, Rottnest Island.

Boat Licensing.—The Commissioners, who had also been appointed members of the Fremantle Boat Licensing Board under "The Boat Licensing Act, 1878," found that many minor alterations were desirable in the regulations governing the issue of boat licenses, especially in regard to passenger-carrying vessels, and made provision accordingly in their regulations.

Consulting Engineer.—At the suggestion of the Honourable the Premier, the Engineer-in-Chief of the State was appointed Consulting Engineer to the Trust, and at his instance the position of Maintenance Engineer to the Trust was constituted, Mr. E. H. Carlin receiving the appointment.

Working of the Regulations.—Although the regulations framed by the Commissioners provided many sweeping changes in the old Port Regulations existing previously, they have, on the whole, been found to work smoothly from the very commencement.

Shed Accommodation.—The most pressing necessity the Trust experienced was that for increased shed accommodation; so designs for four new sheds were at once prepared, and tenders for their construction were invited at the end of November, 1903, with the result that, this work being now completed, the Port possesses a quay second to none in Australasia, both as regards its appearance and the power it possesses for dealing rapidly and economically with cargo.

Victoria Quay is now, therefore, equipped with nine large transit sheds, three measuring each 240 feet long by 100 feet wide, four each 330 feet long by 75 feet wide, and two each 100 feet long by 30 feet wide.

On the water front of these sheds are laid lines of railway by means of which goods are landed direct into railway wagons and consigned inland or *vice versa*, and on the land side of the sheds are also two lines of railway where goods, which have required sorting, are loaded into railway wagons for consignment inland. This system of consigning direct from the ship to destination is fostered by the Trust and results in great savings in charges as well as securing rapidity in goods reaching their ultimate destination.

The sheds are lit inside and out by electric light.

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Harbour Lights.—As regards harbour lights, those that have been decided upon, and are now being exhibited as the permanent lights, are a fixed green on the South and a fixed red on the North Mole. There has also been erected at the end of the Mail Boat Jetty, in the Inner Harbour, a fixed red light, screened to show the fairway clear of the "knuckle" of undredged rock on the North side of the entrance channel, the channel itself being lit by five 5th Order beacon lights.

Handling of Cargo.—A question which, from the outset, gave a considerable amount of trouble was that of handling cargo in the stage from the ship's slings to the point of delivery to the consignee. The Commissioners were all along conscious that while the policy they had adopted of leaving this to be arranged for between the ship and the owner of the goods enabled them to stand aside from all responsibility in connection with the care of cargo on the wharves, there was continually existing a feeling that the arrangement of allowing the two principals to the contract to work together, and in direct touch with one another, was not giving the satisfaction and protection to the merchants, and through them to the consumers generally, that they were entitled to enjoy; the fact being that the shipowners held to their contention that in the terms of their maritime contract their responsibility as marine carriers ended at the slings, and that although they consented, in consideration of the payment of certain rates, to handle the goods from the slings to the point of delivery, those rates were in payment for definite services rendered, and covered no responsibility after the goods had left the slings.

A conference was therefore arranged in which all the various interests were represented, and the matter was thoroughly gone into, the ultimate conclusion being that the Harbour Trust Commissioners were formally requested by both Chambers of Commerce and by the oversea shipowners to take over the whole of the work; the Fremantle Chamber going the length of saying that the merchants would rather pay slightly increased rates than those then ruling, in order to get the protection they sought.

The Commissioners, after having exhausted every effort to bring the two parties to some amicable understanding in which the work at the Port could be put upon a firm and satisfactory basis, held a special meeting to discuss the subject finally, and at length decided, in view of all the circumstances, and with the desire that the Port of Fremantle should maintain the good commercial name it was steadily earning, to recommend to the Government that the wishes of the merchants should be acceded to, and that all work on the wharves should thenceforward be undertaken by the Trust.

The Commissioners considered that it was proper that the Government should be informed of the position before any definite answer was given, or their decision made public, for the reason, especially, that the duties and responsibilities which were involved

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by such decision were not actually imposed by the Fremantle Harbour Trust Act, and because the Government had already concurred in their line of policy up to that point.

The matter was considered by the Government, and the concurrence of Cabinet was duly communicated to the Commissioners, who thereupon announced the fact that they would shortly take over the work indicated, and at once the necessary amendments to regulations were put in hand.

In framing these regulations, the Port of Wellington, New Zealand, was largely taken as a guide. The regulations were duly completed and concurred in by the Government, and came into force on 1st May, 1904; since which date, therefore, all work upon both inward and outward cargo, in the stage between the owner thereof and the ship's slings, has been controlled by the Trust.

The Commissioners, in connection with this work, introduced a custom at the Port by which the ship shall provide one man at the slings to give delivery to the Trust, by the unhooking of the goods from the ship's tackle. This custom will definitely fix the point at which the ship finishes her contract for the carriage of the goods and at which the Trust takes over, and will prevent many disputes which would otherwise be almost certain to arise. The innovation, although at first objected to by some of the shipping companies, is now working satisfactorily.

It was not to be expected that a change of this magnitude should come into operation and work with complete smoothness from the start, yet the obstacles that arose were promptly met and dealt with, and the new system was soon working well and giving satisfaction to the merchants and increased despatch to the ships.

Fremantle, therefore, now stands in the position of being the only port in Australia where the port authority undertakes the entire working of the wharves, which position is a very distinct advance upon the methods previously in vogue.

Wharf Cranes.—The Commissioners considered early the question of equipping Victoria Quay, and possibly other wharves later on, with modern electrical cargo cranes, and after careful study of the question of the best available appliances of this nature extant, a commencement has been made by ordering from England six electric gantry cranes, arranged to run on Victoria Quay, spanning the two sets of railway roads. These cranes will lift cargo out of the biggest vessels that have yet come south of the Equator, and land same either into shed or railway wagon or road vehicle, or other vessels lying alongside that being worked by them. The quay it also to be equipped with electric capstans for moving railway wagons about or assisting to berth vessels.

To facilitate the handling of heavy packages, two three-ton travelling cranes have been purchased from the Railway Department, and lines of rails have been laid between the sheds to enable the crane to move in and out of the places where the work is required

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to be performed. These sidings are so arranged that the crane can operate for the full length between the sheds and load the goods either into railway wagons or road vehicles, by which they are removed from the wharf. These cranes are also used to discharge sailing vessels, with decidedly advantageous results.

The whole of Victoria Quay is now planked flush with the top of the rails, so that no obstacles exist to interfere with work thereon.

Facing of Embankment under Victoria Quay.—The Engineer-in-Chief's proposal to cover the rough rubble face of this embankment with a rendering of some three inches thick of cement concrete has been carried out by the Public Works Department, and is serving its purpose most effectually, the embankment, which in its rough state was a lodging place for garbage and a harbour for rats, being now perfectly clean and sweet. The work will be continued for the remainder of the embankment.

Outer Harbour.—Beacons have been erected on Garden Island, showing the line of deepest water available for crossing the Parmelia Bank, and also on the coast North of Rockingham, marking the ballast ground for vessels working at Rockingham.

Electric Lighting.—The nine goods sheds on Victoria Quay have had electric light installed, the lighting now attained being a very great improvement over the system of gas lamps used previously. The quay is now entirely lighted by electricity. The North Quay is lit by Kitson Lights.

Finance.

The Commissioners' Report for the six months ended 31st December, 1904, contained, *inter alia*, the following statements with regard to the financial transactions of the Trust:—

"The amount paid to Consolidated Revenue for the half-year was £27,438 6s. 3d., and for the year £50,237 18s. 5d., as representing the portion of profit available in cash after providing for all working expenses and maintenance, and this sum represents a return of 3·86 per cent. on the Capital Cost (assumed at that date to be £1,300,000).

"As the average interest cost of Loan Moneys generally is 3·35 per cent., there remains ·51 per cent. to be devoted by the Government towards the general Loans Sinking Fund, and renewals of plant bought out of Loan Funds, which is in active use at the Port.

"The payment to Consolidated Revenue during the half-year under review equals 4·22 per cent. per annum on the capital cost.

"*Profit and Loss Account.*—This account shows a gross profit for the half-year of £28,701 17s. 9d., and for the year £52,748 19s. 5d. The amount for the half-year under review has been devoted to writing down assets and to payments to Consolidated Revenue as stated above, the balance being carried forward.

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"The total cost of working for the half-year ending 31st December has been £5,054 5s. 3d. more than for the previous half-year, owing to the fact that this is the first full half-yearly period during which the Trust has been doing the handling of cargo on the wharves. As against this increased cost of working, the cost of wharf labour in handling cargo has been £7,200 more than was the case for the period ending 30th June last, so that in reality the cost of working the whole concern has decreased as the business of the Trust has settled down into well-defined and undisturbed lines.

"*Pilot Service.*—This service shows a gross profit on working for the year of about £1,000; but when it is remembered that the Trust has in active work some £15,000 worth of plant (floating and otherwise) in this service which has been bought out of Loan and other Funds, not the revenue of the Trust, and should be written down for depreciation, it will be found that the service has just about paid its way.

"*Wharves and Harbour Maintenance, £712 12s. 1d.*—This item has been only about half as much as it was for the half-year ending 30th June, 1904, owing to the extensive alterations and additions at the wharves, etc., not recurring during the past half-year.

"*Claims paid in respect of Cargo, £81 4s. 10d.*—This is an item which is, unfortunately, inseparable from the duty of receiving, handling, and accepting responsibility for the care and safe custody of cargo. Considering the tonnage dealt with, however, this item cannot reasonably be considered excessive.

"*Haulage and Labour Services, £738 13s. 1d.*—This sum represents the amount paid to the Railway Department during the half-year for work done in hauling and handling cargo which the Trust could not deal with. In its comparison with the amount paid during the half-year ending 30th June last, viz., £4,838 19s. 1d., this item very markedly shows the extent to which the practice of hauling cargo off the wharves to be dealt with elsewhere has been eliminated; as a matter of fact, the practice has now almost entirely ceased.

"*Handling of Cargo.*—This is the first full half-year's experience of this work, and the Commissioners are pleased to be able to show that, notwithstanding numerous reductions in the rates in vogue for this work previously, the business has shown a fair working profit after bearing its proper proportion of administrative and incidental expenses. The sum of £10,965 8s. 1d. has been disbursed by the Trust in wages in respect of this work alone, during the half-year, the average weekly wharf pay-sheet being £420.

"*Fire Prevention, £224 13s. 2d.*—This is the net cost of working and maintaining the Trust's fire-float and engine, to work which a volunteer brigade has been formed from among the constantly employed workmen. The utility of this engine and brigade has been shown in a most marked manner on two occasions during

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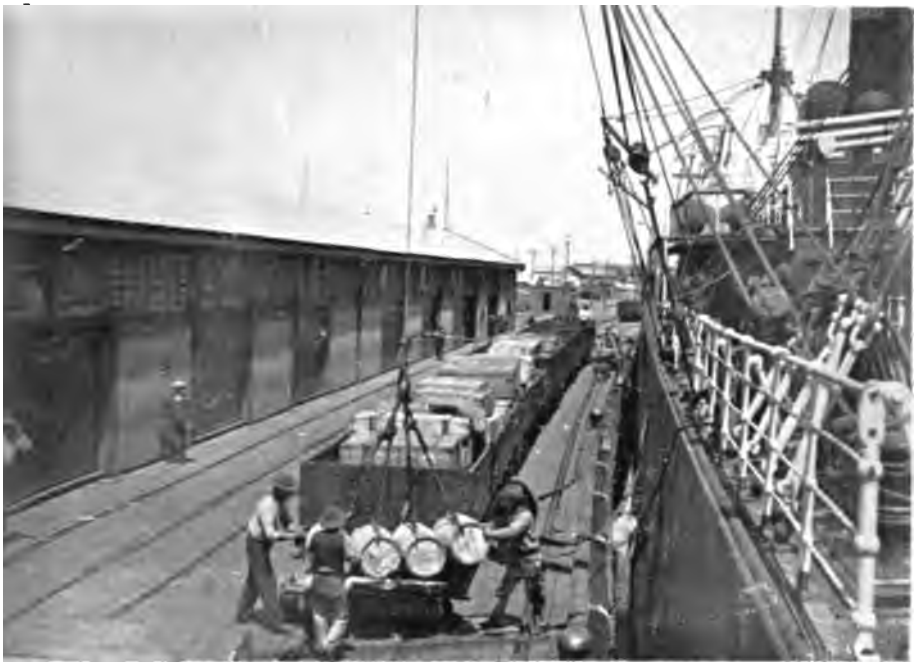

Working Cargo. Victoria Quay. Fremantle.

Fremantle. Inner Harbour.

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the half-year, when the appliances and men were requisitioned by vessels on fire, and on both occasions the efficiency of both men and engine were warmly acknowledged by the masters of the vessels they assisted. There is no doubt whatever that in one case the presence of such an engine in the harbour prevented what might otherwise have resulted in a catastrophe for the ship concerned, which, if it had occurred, would have caused an enormous loss of property.

"*Earnings.*—On the earnings side the total receipts show an increase of £9,708 18s. 4d. over the total for the previous half-year, which is accounted for by the collections for the handling of cargo. The other channels of revenue show approximately the same results as the previous term."

Description of the Port.

Fremantle is situated in latitude 32° 03′ S., and longitude 115° 45′ E., as taken at the Timeball Tower on Arthur Head. The Port consists of Gage Roads, Owen's Anchorage, Cockburn Sound, and the Inner Harbour. Gage Roads is a large area of water enclosed between a long line of islands and reefs and the mainland. The roads are about five miles wide by eight miles long, and are open only to the North. Owen's Anchorage and Cockburn Sound lie to the South of Gage Roads. Anchorage in any of these areas is good and safe in all weathers, the bottom being sand.

The Inner Harbour, where practically all the shipping business of the Port is now carried on, is a modern artificial harbour, which has been constructed within the estuary of the Swan River to designs by the late Mr. C. Y. O'Connor, C.M.G., when Engineer-in-Chief of the State. The entrance to the harbour is protected by two rubble Moles, that on the North being 4,800 feet in length, and that on the South 2,040 feet. The channel between is 450 feet in width, and runs from the 30 feet contour (which is within the protection of the North Mole) for a length of 3,000 feet to the harbour. At its inner end this channel is widened out for a length of 1,550 feet till it reaches a width of 575 feet. The harbour proper has a length of about 4,500 feet, and is for the most part 1,400 feet in width. The depth of water in channel and harbour throughout is 30 feet below lowest low water. In the construction of this harbour no less than a million and a-half cubic yards of rock have been tipped into the Moles, while two million cubic yards of rock and nearly eight million cubic yards of sand have been removed by dredging. The total wharfage accommodation already completed inside the harbour is 9,255 lineal feet, of which 7,955 feet has a uniform depth of 30 feet, while 1,000 feet has a depth ranging from 26 feet 6 inches to 22 feet, and 300 feet has a varying depth of 20 feet to 16 feet 6 inches, all at extreme low water. This work was commenced on 16th November, 1892, and is now almost entirely completed, and has cost about £1,300,000.

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Three sets of heavy screw moorings are laid in the Inner Harbour, to which vessels may moor when they do not require to come alongside a wharf.

Since the Inner Harbour was first used for shipping there has been no accident of any sort to vessels entering or leaving. Steamers of heavy draught constantly berth at the quays, navigating the entrance channel and harbour under their own steam; the greatest draught thus dealt with so far has been 29 feet 8 inches.

Lighthouses.—The entrance to the Port of Fremantle is exceptionally well lighted, there being on Rottnest Island, situated at the entrance, a 1st order revolving light, exhibited from a natural grey-coloured stone tower, built on a hill 154 feet in height, near the centre of the Island, the focal plane being 264 feet above high water. The light is visible all round the horizon for a distance of 23 miles. (Geographical position—Lat. 32° 00′ S., Long. 115° 31′ E.)

There is also a 2nd order fixed white light, at a height of 98 feet, visible for 15 miles, erected on a natural grey-coloured stone tower at Bathurst Point, Rottnest. This light is visible from seaward over an arc of 200 degrees, *i.e.*, between the bearings of E. $\frac{3}{4}$ S. through North to N.W. by W. $\frac{1}{4}$ W.

On rounding Rottnest there is brought into view another 1st order light, exhibited from a natural grey-coloured stone tower on a hill behind Woodman's Point to the South of the town of Fremantle, the height of the focal plane being 123 feet. This is an occulting light, with an eclipse of three seconds every half-minute, visible for 17 miles, and showing a white segment in the fairway into Gage Roads, with a red sector on West, and green sector on East side of fairway.

The entrance to the Inner Harbour is marked by a fixed green light on the end of the South and a fixed red light on end of the North Mole, the height of both lights being 49 feet above low water.

The channel into the Inner Harbour is marked by five 5th order dioptric beacon lights, three red on North side and two white on South side.

Dues on Ships.—The dues on ships, payable to the Harbour Trust, are—

(*a.*) Pilotage dues (where same incurred.)

(*b.*) Tonnage dues.

(*c.*) Berthing dues.

Specially low rates have been arranged to meet the case of vessels coming to the Port for orders or coal or provisions, etc., or for passengers only, or to work only a small quantity of cargo. In this respect Fremantle now offers far greater advantages than any other port in Australasia.

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Light Dues.—Light dues are payable to the Government at the office of the Harbour and Light Department, Cliff Street, and amount to 2d. per ton net registered tonnage inwards and outwards.

Light dues payable by vessels discharging or loading cargo less in extent than one fourth of their net registered tonnage, or landing or embarking passengers exceeding ten in number or both, amount to 1d. per ton on their net registered tonnage, which payment covers both the inward and outward trip, instead of the 4d. per ton payable by vessels working cargo in excess of one-fourth of their net register.

Water.—Good potable water, obtained from an artesian bore in the town, is supplied to vessels from mains laid along the wharves. The supply is in the hands of a Government department, there being an office on Victoria Quay, and the main office in Marine Terrace.

The price to shipping is 4s. per 1,000 gallons up to 35,000 gallons, with reductions for larger quantities.

Reservoir water is also available in any quantity required.

Ballast.—Sandy rubble ballast is supplied in lighters alongside vessels for 3s. 3d. per ton, or on board for 4s. 6d. per ton.

Coal.—The price of coal for bunkering purposes varies from 25s. to 30s. per ton (in bunkers), according to contract and quantity, for New South Wales coal. There are several hulks in the harbour, and supplies amounting to 7,000 to 8,000 tons are usually carried.

Wharfage Dues on Goods.—Wharfage dues on goods landed or shipped at the Port are payable to the Harbour Trust by the consignee or consignor respectively, and are 2s. 3d. per ton where worked through a wharf shed, and 2s. per ton where dealt with otherwise, calculated on weight or measurement as per ship's manifest; but coal for bunkering purposes is free.

There are no outward wharfage dues payable on goods shipped to ports within the State, with the exception of a few special commodities.

Goods which have already paid an inwards due may also be re-shipped free of wharfage dues to ports beyond the State.

Transhipments overside vessel to vessel are charged 1s. per ton, but where goods are landed for transhipment to other vessels, the charge is 2s. per ton.

The wharfage dues include free storage in the wharf sheds for 48 hours after the goods are landed, and thereafter the storage charges are 1s. per ton per week for the first week, with an advance of 3d. per ton for each succeeding week. There is, however, a penal charge of 2s. per ton per day leviable on goods which are not removed within 24 hours after service of notice that storage room no longer exists. Special rates of storage are made on outward goods received to await shipment.

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Since 1st May, 1904, as before mentioned, the Harbour Trust Commissioners have undertaken the whole work of handling cargo (both inwards and outwards) on the wharves, as between the ship and the owners of the goods. Inwards cargo is now received from the ship's slings, tallied, sorted, stacked and delivered to consignees by Trust's labour. Outwards cargo is received from the consignors and handed to ship. For this work handling charges are imposed of 1s. 6d. per ton where receipts are given and taken for miscellaneous cargo involving delivery to the owner's cart or other conveyance, or 9d. per ton where cargo is landed direct into railway wagons at ship's side but not tallied. This rate includes all labour of stowing in the wagons for main line running, including roping and sheeting. Bulk cargo, inwards, pays a handling charge of 6d. per ton when landed direct into trucks, except coal and lead concentrates, which pay 3d. per ton, and coke 4d. per ton; these rates including all loading and trimming, roping and sheeting, wherever necessary.

Time Ball and Gun.—There is an Astronomical Observatory at Perth, of which a very practical feature is the maintenance of correct time. The standard clock is regulated to keep true time of the 120° meridian (eight hours ahead of Greenwich), and by means of electric connections drops a time ball and fires a gun at Arthur Head at 1h. 0m. 0s. daily. The ball is at present placed on the top of the old Arthur Head lighthouse tower, and is in clear view of the whole Harbour. An extra signal by ball may also be given for the convenience of masters of vessels, at any desired hour, upon application to the Harbour Master.

Weather Forecasts.—These are exhibited daily in the post offices of Perth and Fremantle, and copies may be obtained by masters of vessels requiring them.

Repairs.—All ordinary repairs to wooden or iron vessels may be carried out at Fremantle, and any vessel which can be accommodated on the present slip is able to have such repairs as may be necessary carried out in her hull. There are numbers of shipwrights who find constant employment, and in Fremantle and Perth are engineering firms which undertake all ordinary iron or steel work, as there are large shops fitted up with the most modern appliances. Amongst other machinery hydraulic boiler-making plant is available, so that boilers can be made in the State, or any kind of boiler-work undertaken. This plant can also be used in the preparation of plates or for ship repairs. Repairs of all ordinary kinds to rigging and engines can locally be effected.

There is always a good stock of iron, steel, and timber of various classes to be had.

In connection with the subject of repairs, it is also worthy of note that the Port of Fremantle is so very sheltered that it is a perfectly safe and easy operation to "heave down" or "tip"

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H.M.S. "Powerful" in Fremantle Harbour.

H.M.S. Euryalus" at Victoria Quay, Fremantle.

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vessels, and this has been done repeatedly with vessels of large tonnage.

Patent Slip.—There is a patent slip in the Inner Harbour, capable of dealing with vessels of a dead weight of not more than 850 tons.

Graving Dock.—A graving dock, capable of taking the largest vessels trading to the Southern Hemisphere, is about to be built at Fremantle.

Rocket Life-saving Apparatus.—Rottnest Island has been equipped with a complete Board of Trade rocket apparatus for saving life from shipwreck. The apparatus, when required, will be handled by the Trust's look-out staff.

Steam Life Boat.—The port also possesses in the s.s. "Lady Forrest" one of the latest and most up-to-date steam life boats in the world.

Fire Engine.—The inner harbour is equipped with a powerful floating fire engine, which is always held ready for work at a moment's notice. The machine has already rendered very valuable services to vessels on fire.

Trade of the Port.—Fremantle is one of the most important sea ports in Australasia. It is the first and last port of call in Australia for the various lines of steamers trading to other parts of the globe. The largest of the ocean liners enter and leave the inner harbour in any weather, day and night, without the least hesitation or delay. During the year ending 31st December, 1904, the net register tonnage of vessels entered as using the port was 1,135,866 tons, while the tonnage of goods handled was 735,000 tons.

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4.—BONDING WAREHOUSES.

(On 31st December, 1903.)

Fremantle.

King's Warehouses.

Store "A," Customs Reserve, Cliff Street.
" "B," Customs Reserve, Cliff Street.

Public Warehouses.

Dalgety & Co., Ltd., High Street.
Burns, Philp, and Co., Essex Street.
Falk's, Phillimore Street.

Private Warehouses.

Dixson's, Newman Street.
Tolley's, Packenham Street.
Bateman's, Henry Street.
Samson's, Marine Terrace.
Shenton's, Cliff Street.
Sandover's, Mouatt Street.
Moylan's, Phillimore Street.
Monger's W.A. Stores, Ltd., Newman Street.
Wood, Son, & Co.'s, Cantonment Street.
Moore's, Henry Street.
Balchin's, Henry Street.
Vacuum Oil Co.'s, Packenham Street.

Perth.

King's Warehouses.

King's Warehouse at Railway Station Yard.
King's Warehouse at Riverside.

Private Warehouses.

Milne & Co., William Street.
Faulding's, Murray Street.

Geraldton.

King's Warehouse.

Private Warehouse.

Burns, Philp, & Co., Durlacher Street.

King's Warehouses are also provided at each of the following outports:—Albany, Broome, Bunbury, Carnarvon, Cossack, Derby, Dongara, Esperance, Onslow, Port Hedland, Vasse, and Wyndham.

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	Goods Vehicles in Traffic on 30th June	5,632	5,581	5,186	51	...
32	Equivalent of Goods Vehicles in four-wheel Wagons	7,551	7,488	6,841	63	...
33	Total number of Persons employed on 30th June	6,747	6,241	6,053	506	...
33	Average number of Persons employed during whole year, exclusive of Casual hands	5,616	5,618	5,211	...	2

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5.—RAILWAYS AND TRAMWAYS.

GOVERNMENT RAILWAYS.

Information supplied by W. J. George, Commissioner of Railways.

The following table shows, by way of preface, in a clear and succinct manner, the comparative results of the working of the Western Australian Railways for the three years 1901-2 to 1903-4:—

Comparative Results of Working for Years 1903-4, 1902-3, 1901-2.

Reference No.	Particulars.	1903-4.	1902-3.	1901-2.	1903-1904 compared with 1902-1903. Increase.	Decrease.
1	Total amount debited on Capital Account	£8,955,929	£8,141,782	£7,410,426	£814,147	...
2	Average number of miles worked during the whole year	1,535	1,434	1,356	101	...
3	Cost per average mile worked	£5,834	£5,678	£5,465	£156	...
4	Total amount debited for Interest ...	£296,676	£274,725	£252,891	£21,951	..
5	Gross Earnings	£1,588,084	£1,553,485	£1,521,429	£34,599	...
6	Working Expenses	£1,179,624	£1,247,873	£1,256,370	...	£68,249
7	Surplus of Earnings over Working Expenses	£408,460	£305,612	£265,059	£102,848	...
8	Surplus of Earnings over Working Expenses and Interest	£111,784	£30,887	£12,168	£80,897	...
9	Percentage of Working Expenses to Earnings	74·28	80·33	82·58	...	6·05
10	Percentage of surplus to capital ...	4·56	3·75	3·58	0·81	...
11	Earnings per average mile worked ...	£1,034	£1,083	£1,122	...	£49
12	Working Expenses per average mile worked	£768	£870	£927	...	£102
13	Net Return per average mile worked	£266	£213	£195	£53	...
14	Train miles run	4,594,234	4,611,315	4,507,919	...	17,081
15	Earnings per train mile	82·96d.	80·85d.	81·00d.	2·11d.	...
16	Working Expenses per train mile ...	61·62d.	64·95d.	66·89d.	...	3·33d.
17	Net Return per train mile	21·34d.	15·90d.	14·11d.	5·44d.	...
18	Passenger Journeys	10,225,976	9,106,396	8,158,299	1,119,580	...
19	Paying Goods Tonnage	2,032,740	1,773,637	1,866,794	259,103	...
20	Departmental Goods Tonnage (non-paying)	224,494	173,312	151,946	51,182	...
21	Live Stock Tonnage	24,530	21,382	21,352	3,148	...
22	Total Tonnage, Goods and Live Stock	2,281,764	1,968,331	2,040,092	312,433	...
23	Coaching Revenue	£462,455	£437,232	£430,093	£25,223	...
24	Goods Revenue (including Live Stock)	£1,026,734	£963,877	£970,684	£42,857	...
25	Miscellaneous Revenue	£98,895	£132,376	£120,652	...	£33,481
26	Miles open for Traffic on 30th June (Main Line)	1,541	1,516	1,360	25	...
27	Locomotives in Traffic on 30th June	329	316	274	13	...
28	Passenger Vehicles in Traffic on 30th June	269	264	255	5	...
29	Brake Vans in Traffic on 30th June ...	127	113	104	14	...
30	Goods Vehicles in Traffic on 30th June	5,632	5,581	5,186	51	...
31	Equivalent of Goods Vehicles in four-wheel Wagons	7,551	7,488	6,841	63	...
32	Total number of Persons employed on 30th June	6,747	6,241	6,053	506	...
33	Average number of Persons employed during whole year, exclusive of Casual hands	5,616	5,618	5,211	...	2

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History of Construction.

Although the railway history of Western Australia commences at a date considerably later than that of any of the Eastern States of the Commonwealth, it is in many respects, as regards rapidity of construction and growth of traffic, unique in comparison with that of the Eastern systems. As distinguished from the previous condition of affairs, when the requirements and agricultural products of the older settlements formed the staple source of railway revenue, this more particularly applies to the last decade, at the beginning of which a large and prosperous traffic rapidly developed, engendered by the magnificent gold discoveries of the Coolgardie and Murchison fields.

It was not until the 26th July, 1879, that the first railway line of the Colony, that connecting the port of Geraldton with the copper mining district of Northampton, was opened; the permanent way being laid with rails as light as 35lbs. per yard, and the standard gauge, the one still adhered to, being 3 feet 6 inches. The construction of this line was followed by the connection of Fremantle with Guildford (*via* Perth), opened on 1st March, 1881, to which line extensions were made to Chidlow's Well (*via* Smith's Mill), opened on 11th March, 1884, and to York and Beverley in 1885 and 1886 respectively, while branch lines from Spencer's Brook to Northam, and from Clackline to Newcastle followed in October, 1886, and January, 1888. In the meantime the system, having its terminus at the Northern port of Geraldton, was added to by a branch line to Walkaway, in the rich wheat district known as the Greenough Flats, which extension was opened on 21st July, 1887.

The advantages of railway communication in the Northern and middle portions of the agricultural districts of the Colony soon led to an agitation among the farmers of the South-West, with the result that on 12th March, 1891, a third separate system, for similar benefits, was added to the two previously mentioned by the opening of a line running 16 miles inland from Bunbury, through a rich agricultural district, to Boyanup. The inconvenience of such a system, isolated as it was from the capital, however, quickly gave rise to further agitation, of which the practical effect was seen in the opening of 110 miles of connecting line in two sections during 1893, namely, from East Perth Junction to Pinjarra, on 2nd May, and from Pinjarra to Picton Junction, near Bunbury, on 22nd August. To keep pace with increased settlement and production, extensions of the original Bunbury-Boyanup line were constructed and opened at intervals, viz., from Boyanup to Donnybrook, 16th November, 1898; a branch from Boyanup to the coast at Busselton, on 26th December, 1895; and an extension from Donnybrook through magnificent timber country to the old-established agricultural town of Bridgetown, on 1st November, 1898.

During the period just prior to and immediately following the institution of Responsible Government, on 21st October, 1890, prospecting for gold was energetically and successfully pursued, and resulted in rapid additions to the discoveries of the Murchison and

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Perth Railway Station.

Perth Passenger Station, Eastern End.

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Wagin (Country) Railway Station.

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Yilgarn districts. To assist the development of the resources so discovered naturally became the main object of the Government, and Bills were speedily passed for the construction of lines towards these two goldfields. From Northam to Southern Cross—a distance of 170 miles—the latter then being the principal gold-producing centre of the Colony, the rails were quickly laid, the extension being opened on 1st July, 1894. Meanwhile, the Northern system had been connected with the Eastern and South-Western systems by means of the Midland Railway, built, after various vicissitudes, by a private corporation under a land grant concession; and on 21st November, 1894, a line leaving a point about nine miles from Geraldton, known as the Mullewa Junction, was constructed towards the Murchison fields for a distance of about 57 miles, passing principally through pastoral country. The numerous further discoveries of auriferous country, however, prevented the possibility of these places remaining as termini for any long period. Even while they were under construction, their extension was being discussed, and it soon became evident that the connection of the mining centres of Coolgardie and Cue, with their respective ports, must be affected as quickly as possible. Parliament at once, when applied to, passed the necessary enabling legislation without difficulty in regard to both projects. The extension to the Coolgardie goldfield, and thence Northwards, inclining to an ultimate junction with the Murchison system, was subsequently carried out as circumstances permitted, the sections being opened in the following order:—

Southern Cross to Boorabbin, opened 1st July, 1896.
Boorabbin to Kalgoorlie, opened 1st January, 1897.
Kalgoorlie to Menzies, opened 13th February, 1899.
Menzies to Leonora, opened 12th January, 1903.

A short suburban line from Kalgoorlie to Lakeside, passing along the world-famed "Golden Mile," and serving the mines and their immediate population, was constructed, and was opened on 8th November, 1897. It was, in the first instance, laid more on the basis of a tramway than as a railway, but has since been brought up to the standard of a first-class suburban line for goods and passengers, the road having been duplicated, and interlocked signalling installed, and substantial buildings erected with every convenience for the traffic which is carried. Subsequently, on 17th March, 1902, the Brown Hill loop-line, of 4½ miles, traversing the outer side of the "Golden Mile," and connecting with the Kalgoorlie-Lakeside line at Hannan Street and Kamballie Stations, was built and opened for the convenience of the mines and population on the North-Eastern side of the ridge of hills wherein the celebrated gold deposits are worked. A branch connection of 12 miles from Kalgoorlie to Kanowna—then at the height of its alluvial fame—was opened on the 15th June, 1898.

In the Murchison district the extension of the line from Mullewa inland, 196 miles further to Cue, was completed and opened on 1st July, 1898, an additional extension of 46 miles to Nannine being opened on 1st June, 1903. The 1st July, 1898, also saw the opening of a branch line leaving the Perth-Bunbury Rail-

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way at Brunswick Junction, and running through the Darling Ranges for a distance of about 26 miles to Collie, at which place coal had been discovered and mines had been opened out, giving sufficient prospect of solidity to justify Parliament in authorising the construction of a railway for the assistance of their development. This industry has since progressed to such an extent that the railways now draw nearly the whole of their supplies of coal from Collie, while, at the same time, a large private trade has also been developed. On 2nd November, 1903, therefore, a six-mile extension of the line to the Collie-Boulder leases was opened.

While the additions to the railway system detailed in the preceding paragraphs were in progress, provision of local conveniences and improved traffic conditions had not been overlooked, nor had the requirements of agricultural production been passed by. For the benefit of the race-going portion of the community, a very considerable one, a branch from the Perth-Guildford line to a point near the Swan River opposite the W.A. Turf Club's metropolitan course, at Belmont, had been opened on 1st January, 1885; it was now (in 1897) duplicated and extended over the river to a point close to the grand stand, being opened in its new form on 21st October of that year. Racecourse branches were also made available for the Canning and Bunbury courses on 22nd February, 1896, and 17th November, 1897, respectively. On 1st July, 1896, a deviation or relocation of a portion of the Eastern main line through the Darling Range, between Bellevue and Lion Mill (*via* Parkerville) was opened under the name of the Mahogany Creek deviation, giving a ruling grade of 1 in 50 between the points named, as compared with the ruling grade of 1 in 25 over the old line, *via* Smith's Mill. The latter is still worked as a local line, under the name of the Smith's Mill branch, but the deviation *via* Parkerville has taken its place as a portion of the recognised main line. In addition to the previously-mentioned lines of the South-West, agricultural cockspur branches were built in the Avon Valley district, leaving the main system at York and Northam, and running respectively to Greenhills and Goomalling. These were opened for traffic on 1st September, 1898, and 1st July, 1902. A connecting line of about three miles from the Fremantle Goods Yard to the Smelting Works, Explosives Depôt, and Stock Jetty at Owen's Anchorage, intended exclusively for goods traffic, was completed in October, 1898. On the removal of the Explosives Magazines to Woodman's Point, the line was extended thereto (2½ miles), the extension being opened on 1st July, 1903. On 1st July, 1903, also, the Upper Darling Range branch, running from Midland Junction into the Darling Range, 15 miles 2 chains in length, formerly owned and worked by the Canning Jarrah Timber Company, was purchased by the Government under the terms of the Company's original concession, and was opened for traffic as part of the State railway system.

So far as the agricultural prospects of the State are affected, however, perhaps the most far-reaching event of the period under review lay, not in construction, but in the purchase of the lands and

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railway belonging to the West Australian Land Company. This property, which was acquired by the Government on 1st December, 1896, consisted of a railway 243 miles in length from Albany, the Southern port of the State, and the then port of call for mail steamers, to Beverley, the Southern terminus of the Eastern Railway. It had been built and opened on 1st July, 1889, by the company, the inducement being a grant of 12,000 acres per mile of line constructed, though half the frontage to the railway was reserved to the State. The policy of the absentee board of the company, however, in regard to the disposal and settlement of their vast estate had not been of a successful nature, and the purchase was dictated as much by the desire to unlock the land and to promote settlement as by any necessity for the acquisition of the means of communication afforded by the railway. The price was divided by the Government, for book-keeping purposes, into £300,000 for the land and £800,000 for the railway. The wisdom of acquiring the company's interest has since been made fully apparent in the settlement which has now taken place along a strip within 40 miles on both sides of the line, and in the present early prospect of an export trade in cereals and fruit from land which previously was, to all intents and purposes, unavailable for selection. The district is known as the Great Southern, the old title of the railway.

The mileage in operation throughout the State on the 30th June, 1904, consisting of the above-named sections divided geographically into groups, covered a total length of 1,516 miles, exclusive of sidings. The details are as follows:—

Division.	Main Line.	Sidings.	Total.
	Miles.	Miles.	Miles.
1. EASTERN RAILWAY— Fremantle to Northam, including Owen's Anchorage and Woodman's Point, Belmont, Upper Darling Range, Newcastle, Greenhills, and Beverley Branches, and Mahogany Creek Deviation	179	79	258
2. EASTERN GOLDFIELDS RAILWAY— From Northam Eastwards, including Kanowna, Leonora, Lakeside, and Goomalling Branches, and Brown Hill Loop Line	526	60	586
3. SOUTH-WESTERN RAILWAY— From East Perth Junction Southwards, including Canning and Bunbury Racecourse Branches, Collie, Collie-Boulder, Busselton, and Bridgetown Branches ...	240	38	278
4. GREAT SOUTHERN RAILWAY— Beverley to Albany	243	14	257
5. NORTHERN RAILWAY— Geraldton to Nannine, and including Walkaway and Northampton Branches	353	23	376
Total	1 541	214	1,755

During the whole period from 1893 it was found necessary to be constantly adding facilities for the expanding of traffic in the shape of

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additional stations and sidings, and of increasing the conveniences for the passage of goods and passengers at existing stations. Early in 1897 a policy was inaugurated of equipping all the more busy portions of the lines with the latest and most improved safe working appliances, in the shape of interlocked signalling and electric instruments for controlling the movements of trains, and, without doubt, the present immunity of the Western Australian Government Railways from any serious accident is due to the foresight which resulted in the adoption of this policy without waiting for it to be forced upon the department by means of some appalling catastrophe.

The following summary will serve to show, in brief, the results which have attended the operation of the Government Railways from their inception down to the 30th June, 1904:—

Period.	Average miles operated.	Net Earnings, after payment of working expenses.		Capital Expended on Lines open from— Loan.	Capital Expended on Lines open from— Revenue.	Total.	Percentage on total Capital expended. Profit.	Percentage on total Capital expended. Loss.
			£	£	£	£	%	%
6 months, 31st Dec., 1879	35	Loss	727	132,000	20,741	152,741	...	0·47
12 months, 31st Dec., 1880	35	Loss	1,225	132,000	20,741	152,741	...	0·80
Do. do. 1881	55	Loss	481	259,936	20,741	280,677	...	0·17
Do. do. 1882	55	Loss	448	260,438	23,240	283,678	...	0·16
Do. do. 1883	55	Profit	562	260,586	25,217	285,803	0·20	...
Do. do. 1884	72½	Profit	2,695	356,668	25,217	381,885	0·71	...
Do. do. 1885	124	Loss	635	551,521	25,217	576,738	...	0·11
Do. do. 1886	133	Profit	2,212	684,045	25,217	709,262	0·31	...
Do. do. 1887	161	Loss	2,903	784,408	26,599	811,007	...	0·36
Do. do. 1888	188	Loss	5,658	789,545	39,556	829,101	...	0·68
Do. do. 1889	188	Loss	7,537	789,573	43,507	833,080	...	0·90
Do. do. 1890	188	Loss	6,527	789,576	43,507	833,083	...	0·78
Do. do. 1891	203	Profit	498	855,763	59,051	914,814	0·05	...
Do. do. 1892	203	Profit	3,547	881,348	62,048	943,396	0·37	...
6 months, 30th June, 1893	203	Profit	7,598	897,544	62,048	959,592	0·79	...
12 months, 30th June, 1894	321	Profit	36,591	1,107,173	62,048	1,169,221	3·12	...
Do. do. 1895	550	Profit	113,955	2,030,324	62,048	2,092,372	5·44	...
Do. do. 1896	580	Profit	265,911	2,167,468	149,356	2,316,824	11·48	...
Do. do. 1897	830	Profit	337,828	3,526,461	208,016	3,734,477	9·04	...
Do. do. 1898	974	Profit	233,359	4,824,981	222,280	5,047,261	4·62	...
Do. do. 1899	1,270	Profit	292,291	6,073,058	354,312	6,427,370	4·55	...
Do. do. 1900	1,355	Profit	398,042	6,472,722	383,641	6,856,363	5·81	...
Do. do. 1901	1,355	Profit	308,784	6,690,131	408,108	7,098,239	4·35	...
Do. do. 1902	1,356	Profit	265,059	6,997,431	412,995	7,410,426	3·58	...
Do. do. 1903	1,434	Profit	305,612	7,739,538	*402,244	8,141,782	3·75	...
Do. do. 1904	1,535	Profit	408,400	8,473,626	482,303	8,955,929	4·56	...

* An amount of £39,675 was credited to the expenditure under this heading on account of Rolling stock written off during this year.

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It will be seen that ever since 1893 the railways have not only paid all charges both for working expenses and interest on the full Capital Account, but have from time to time in addition returned a handsome profit to the State. The policy has been, and is, to make revenue balance as nearly as possible with the outgoings on these two accounts, and it is to the changes in rates and charges brought into force at various dates with this object, rather than to any other cause, that the fluctuation of the percentage returns is to be attributed.

Cost of Construction.

The average cost per mile of railway is the lowest throughout Australasia. This position is firstly the result of the general freedom of the country traversed from those engineering difficulties usually present in railway construction, and secondly of the system adopted of giving contractors the right of carrying traffic during the period of their contracts. With the exception of those comparatively small lengths of line running through, or into, the Darling Range, the railway system generally is constructed over country wherein the only physical opposition to be encountered has been the absence of water suitable for locomotive purposes. As regards the result of the system of tendering adopted in at all events all goldfields railway contracts, the following average costs of construction at the completion of the respective contracts will serve to illustrate the point in question:—

Contract.		Total cost per mile (rolling-stock excepted).
Southern-Cross-Coolgardie ...	115 miles ...	£1,859
Mullewa-Cue	196 „ ...	£1,427
Coolgardie-Kalgoorlie	24 „ ...	£1,435

When the distance of the starting points of these contracts from the coast is borne in mind, the advantage derived from the system in question as regards cheapening construction is at once apparent, and although, of course, the contractors no doubt amply recouped themselves from the revenue derived from the traffic thus obtained, yet, at the same time, it is certain also that their desire to secure the pecuniary benefit of this traffic as quickly as possible was the means of affording the population of the goldfields the convenience of railway communication at much earlier dates than could have been obtained for them by any contract conditions, no matter how stringent. In the earlier periods it was considered not beyond the bounds of possibility that the goldfields railways might become useless within a few years, owing to the working out of the mines, and in order to provide a fund against such evil day the rates and charges for carriage over them were based on a scale 50 per cent. in excess of those levied on the older railways; it was not indeed until 1st July, 1896, that they were assimilated with the rates charged throughout the other portions of the system. The effect of the higher charges is shown in the results above-quoted for the year ending 30th June, 1896, when the percentage of profit to capital, after payment of working expenses, represented no less than 11·48 per cent.

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As regards the average cost per mile of railway open, inclusive of all plant, equipment, and rolling-stock, the undermentioned figures for the past eleven years may prove of interest:—

Date.	Miles open.	Total Capital Cost.	Average cost per mile.
		£	£
30th June, 1894	321	1,169,221	3,642
„ 1895	550	2,092,372	3,804
„ 1896	580	2,316,824	3,995
„ 1897	830	3,734,477	4,499
„ 1898	974	5,047,261	5,182
„ 1899	1,270	6,427,370	5,061
„ 1900	1,355	6,856,363	5,060
„ 1901	1,355	7,098,239	5,239
„ 1902	1,359	7,410,426	5,453
„ 1903	1,516	8,141,782	5,371
„ 1904	1,541	8,955,929	5,812

The gradual increase in average capital cost per mile of railway, despite the opening sections having been constructed at less than the average cost, has been due to the many improvements carried out to meet the expansion of traffic, and also to the large quantity of additional rolling-stock purchased, as required, for the haulage or carriage thereof.

Rolling-stock.

The capital cost of rolling-stock was not separated from the general expenditure on lines and works until the year ending 30th June, 1896. From 1890 to 1895 inclusive, the lines then in operation were worked with the undermentioned engines and vehicles:—

Period ending	Average miles worked.	Locomotives.	Carriages.	Wagons.
31st December, 1890	188	22	28	285
„ 1891	203	28	34	474
„ 1892	203	30	43	634
30th June, 1893	203	33	48	715
„ 1894	321	41	53	1,052
„ 1895	550	49	75	1,459

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During the year ending 30th June, 1896, the capital debit in respect of rolling-stock was extracted, and the proportionate costs thereof per mile open is therefore now readily available; the figures, together with those showing the growth of the working plant, being as under:—

Year ending 30th June.	Average miles worked.	Total Capital Debit in respect of Rolling-stock.	Average Debit per mile of Railway.	Locos.	Carriages.	Wagons and Brake Vans.
		£	£			
1896	580	145,538	251	74	102	3,360
1897	830	383,204	462	151	224	3,485
1898	974	801,538	823	186	289	4,478
1899	1,270	1,177,996	928	231	343	4,558
1900	1,355	1,322,915	971	233	*260	4,777
1901	1,355	1,400,746	1,034	†229	260	4,819
1902	1,356	1,536,275	1,130	274	260	5,285
1903	1,434	1,924,934	1,342	316	264	5,694
1904	1,541	2,275,787	1,477	329	269	5,759

* The apparent decrease was due to a re-classification of brake vans formerly shown as passenger vehicles only, but divided at this date into their respective classes as used for goods and passenger services.

† Decrease represented by: Sold, 2; written off, 3; added, 1.

During the past decade the policy of the management of the Western Australian Railways has been to secure the heaviest possible train loads consistent with the weight of rail and width of gauge* available, and without undue restriction of speed. Financial considerations have, of course, necessitated at times a policy of hastening slowly towards the desired goal, but, nevertheless, a great deal has been accomplished. The standard axle was increased in size and strength in 1900, and, at the same time, the standard drawgear was improved in design with similar objects. This work is proceeding gradually, and is being debited in its entirety to working expenses, the locomotive branch bearing the debit.

While this policy has applied in the case of locomotives and goods wagons, the policy in regard to passenger vehicles has tended rather in the reverse direction, the consideration in this matter being to afford at once the maximum possible comfort to passengers, and particularly to those making the long journeys between the coast and the various goldfields districts, by providing lavatory accommodation, electric light, and sleeping berths. Although the narrow gauge prevents the full attainment of the luxurious proportions of the wider lines, corridor carriages and dining cars have recently been placed on the road with a view of adding to the attractions—or rather perhaps of decreasing the disadvantages—of the journey between the coast

* The standard gauge for Western Australia is 3 feet 6 inches.

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and the Coolgardie and other Eastern Goldfields. The following statements will afford full information in regard to the foregoing remarks:—

Locomotives.

Class.	Description.	Stock on 30th June, 1904.	Tractive power.	Average total weight, engine and tender in working trim.			Average cost per locomotive on traffic.	Date placed on traffic
			lbs	tons	cwt.	qrs.	£	
A	Shunting	8	6,642	32	2	2¼	2,010	1883-1894
B	Do	11	10,425	32	0	0	2,322	1884-1899
C	Mixed and Mail	12	16,500	67	10	0	3,267	1902
D	Shunting	...	3,645	12	8	0	1,500	1884
E	Express, Mail, Mixed and Goods	45	16,620	83	4	0	5,188	1902
Ec	Do do do	20	16,000	73	0	0	3,236	1901
F	Goods	15	21,115	81	8	2	5,998	1902-1903
G	Mixed, Shunting, and Goods	63	10,915	42	12	2	2,403	1889-1899
H	Shunting	2	3,780	14	1	0	955	1889-1890
J	Mixed, Goods, and Shunting	3	9,620	49	0	0	2,556	1892
K	Goods	24	16,770	53	0	0	2,416	1893-1896
L	Shunting	1	9,800	30	10	0	...	1891
M	Do	2	6,920	30	0	0	2,340	No record
N	Suburban Passenger, Express, and Mail	32	12,610	44	4	0	2,951	1896-1901
O	Goods and Slow Mixed ...	46	16,810	58	9	0	2,978	1896-1898
P	Passenger, Mixed, and Goods	2	8,435	51	1	0	2,540	1896
Q	Shunting and Goods	6	14,135	39	0	0	2,520	1896-1897
R	Express, Mail, and Mixed ...	24	11,855	55	16	0	2,705	1897-1899
S	Shunting	2	5,030	17	0	0	1,000	1888-1893
T	Passenger, Mixed, and Goods	10	9,080	49	16	0	2,750	1888-1890
U	Loco. Crane	1	14,292	37	14	0	4,050	1904
		329	...	...			...	...

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Carriage and Passenger Brake Van Stock.

Class.	Description.	Stock on 30th June, 1904.	Average seating capacity per vehicle.	Average Tare.			Average cost on traffic per vehicle.
			Passengers.	tons	cwt.	qrs.	£
A A	First throughout Lavatory ... Bogie	19	25	18	15	0	1,450
A B	Second do do ... do	10	42	18	0	0	1,300
A C	Composite (Lavatory Ordinary) ... do	70	46	15	8	1	989
A D	Composite, with Guard's compartment ... ... do	40	36	15	0	0	1,270
A E	First Ordinary ... ... do	23	36	16	0	0	1,695
A F	Second do ... ... do	31	58	15	5	0	1,175
A G	Bogie Corridors, Gilbert's ... do	17	42	13	6	2	938
A H	Six-wheeled Carriages	6	42	10	0	0	856
A I	Four-wheeled do	5	18	4	5	0	600
A J	Passenger Brake Vans ... ... Bogie	10	...	19	0	0	1,265
A K	Mail Vans, Bogie and six-wheeled ...	6	...	12	15	1	1,130
A L	Inspection Cars, Bogie and six-wheeled	5	...	12	13	2	896
A M	Ministerial ... ... Bogie	1	...	19	4	0	1,900
A N	Vice-Regal ... ... do	1	...	18	15	0	1,450
A O	Funeral ... ... Six-wheeled	1	...	10	9	0	960
A P	Sleeping Cars ... ... Bogie	14	30	18	15	0	1,645
A R	Second-class Corridor Cars ... do	9	48	28	15	0	2,792
A S	Luggage Vans ... ... Six-wheeled	1	...	9	6	0	900
		269	...		...		...

Brake Van Stock.

Class.	Description.	Stock on 30th June, 1904.	Average Tare.			Average cost on traffic per vehicle.
			tons	cwt.	qrs.	£
P	Brake Vans, 6 and 4-wheeled ...	17	6	4	1	490
Z	" Bogie	80	11	0	3	562
Za	" Goods	30	17	18	0	1,650
		127		...		...

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Wagon Stock.

Class.	Description.	Stock on 30th June, 1904.	Load Capacity.	Average Tare.	Average cost on traffic per vehicle.
				tons cwt. qrs.	£
A	Horseboxes 4-wheeled	38	2 horses	4 10 0	260
B	Cattle Trucks ... ... do	37	6 cattle	4 0 0	219
C	Sheep „ ... ... do	35	60 sheep	3 15 0	208
			tons cwt. qrs.		
D	Covered Goods ... ... do	124	6 0 0	3 19 0	110
Dw	Workmen's Sleeping Vans do	9	6 0 0	6 1 3	263
Dx	Weighbridge Testing Vans do	2	6 0 0	5 7 3	115
Dy	Bullion Van ... ... do	1	5 0 0	9 5 0	408
E	Cold Storage Vans ... do	17	5 11 3	6 16 0	256
F	Louvre Vans ... ... do	19	5 10 0	4 15 0	148
Fa	Do ... ... do	52	7 10 0	6 8 0	368
G	Highside Trucks ... ... do	1,172	6 0 0	4 0 0	85
Ga	Do (Standard) do	759	9 0 0	5 0 0	179
H	Lowside Trucks ... ... do	774	5 0 0	3 5 0	86
I	Timber Trucks (swivel bolster) ... ... do	214	6 0 0	3 0 0	65
J	Water Tanks ... 6 and 4-wheeled	300	1,328 gals.	4 18 3	91
			tons cwt. qrs.		
K	Ballast Trucks 4-wheeled	25	5 0 0	3 14 0	85
L	Hoppers (Ballast) ... do	46	5 0 0	3 14 0	85
N	Timber Trucks (rigid bolster) ... ... do	76	6 0 0	3 5 0	75
O	Powder Vans ... ... do	10	5 0 0	4 14 0	145
...	Breakdown Vans... ... do	1	5 0 0	3 18 0	488
...	Ballast Plough 6-wheeled	2	...	8 0 0	120
Ba	Horseboxes ... ... Bogie	6	6 horses	15 3 0	1,187
			tons cwt. qrs.		
Q	Timber Trucks ... ... do	64	12 0 0	7 10 0	205
R	Highside do ... ... do	926	12 0 0	7 10 0	240
Ra	Do do ... ... do	310	18 0 0	10 0 0	383
S	Sheep do ... ... do	50	120 sheep	8 0 0	420
			tons cwt. qrs.		
T	Cattle do ... ... do	85	12 0 0	9 0 0	290
U	Platform do ... ... do	86	12 0 0	6 16 0	250
V	Covered Goods ... ... do	312	12 0 0	9 10 0	315
Vw	Workmen's Sleeping Vans do	2	12 0 0	10 0 2	315
W	Cold Storage Vans ... do	12	12 0 0	17 12 0	1,194
Wo	Meat Vans ... ... do	2	12 0 0	10 17 0	315
X	Coal Hopper ... ... do	1	16 0 0	10 6 3	250
Xa	Do ... ... do	50	25 0 0	11 9 0	419
Y	Powder Vans ... ... do	4	12 0 0	10 10 0	512
...	Breakdown Vans ... do	9	...	14 18 3	425
		5,632	...	...	...

Summary.

	Stock on 30th June, 1904.
Locomotives	329
Carriage and Passenger Brake Vans	269
Brake Vans	127
Wagons, 4 and 6-wheeled...	3,713
Wagons, Bogie	1,919
Wagons (equivalent in 4-wheeled)	7,551

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In relation to locomotive performance, the following table of costs of working the principal classes of locomotives amply demonstrates the wisdom of the adoption of the heavy class engines:—

Class.	Where built.	Date placed on line.	Average engine mileage per engine per four weeks.		Tons capable of hauling over ruling grade.	Average cost per				Average cost per train mile per 100 tons hauling power.		Where running.
						Engine mile.		Train mile.				
			1903.	1904.		1903.	1904.	1903.	1904.	1903.	1904.	
						d.	d.	d.	d.	d.	d.	
C.	America ...	1902	2,274	1,770	184	11·78	11·19	13·08	11·71	7·11	6·36	Eastern, Northern, and Great Southern
E.	Great Britain ...	1902	1,632	2,061	208	14·48	10·04	15·32	10·80	7·37	5·19	Eastern and Eastern Goldfields
Ec.	America ...	1901	2,746	1,316	208	10·16	13·15	12·91	14·41	6·21	6·92	Eastern Goldfields
F.	Great Britain ...	1902	1,288	1,265	275	17·07	16·71	18·87	18·89	6·86	6·83	Eastern
G.	Great Britain } South Australia }	1889 to 1899	1,230	863	120	14·44	13·21	22·26	23·03	18·55	19·19	Eastern, Eastern Goldfields, South-Western, and Northern
K.	Great Britain ...	1893 to 1898	1,179	1,161	208	21·08	18·56	24·15	21·21	11·61	10·19	Eastern, Collie, and Donnybrook-Bridgetown
N.	Great Britain ...	1896 to 1901	1,690	1,656	120	13·54	13·62	14·55	14·49	12·12	12·07	Eastern and Eastern Goldfields
O.	Great Britain ...	1896 to 1898	1,703	1,267	184	15·33	13·65	17·80	15·45	9·67	8·39	Eastern, Eastern Goldfields, South-Western, and Northern
P.	South Australia ..	1896	1,304	916	104	16·05	11·37	25·77	12·51	24·77	12·03	South-Western
R.	Great Britain ...	1897 to 1899	2,608	1,716	120	17·83	10·68	17·83	11·83	14·86	9·85	Northern, Eastern, and Eastern Goldfields
T.	Great Britain ...	1889	2,406	2,067	108	9·87	8·81	9·87	9·25	9·14	8·56	Eastern, Great Southern, and South-Western

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Railways under Construction, etc.

On 30th September, 1904, the following extension was under construction :—

* *Malcolm to Laverton Railway.*—This will form an extension of the Eastern Goldfields Railway system, leaving the present line at Mount Malcolm. The total length of 63 miles is being constructed in two sections, a contract having been let on 29th June, 1903, for the 40 miles from Mount Malcolm to Mount Morgans, which, on 4th August, 1903, was extended to Laverton.

The construction of railways must be specially authorised by Parliament, though Section 121 of "The Land Act, 1898," provides that a timber lease shall authorise the lessee, without charge, to construct railways and tramways on and through the area comprised in his lease, and to haul timber to and from the mills; and, further, on conditions approved by the Governor as to the carriage of goods and passengers, to connect with the most convenient Government or private railway, and also to lay down such railways and tramways through Crown lands outside the area. By the Amending Act of 1902, however, the power is reserved to the Governor to revoke at will and without compensation any such permission as he may give for the above purposes.

The construction of new railways on behalf of the State is vested by the Public Works Act of 1902 in the Minister for Works, the duties of the Commissioner being confined to construction works on railways open for traffic, and his responsibility beginning at the time when he is called upon to take over new railways and work them for public traffic.

Administration.

From the time of their inception until the inauguration of Responsible Government, the construction, maintenance, and control of all railways within the State were vested by Act in an official holding the title of Commissioner of Railways, and having a seat in the Executive Council of the then Government. Very extensive powers for all purposes connected with railways were conferred upon this office, though in the earlier Acts private railway construction does not appear to have been contemplated. Subsequently, however, the Commissioner was called upon to exercise supervision over the safety of working, and charges levied, by private railway owners in a degree somewhat analogous to that for which in Great Britain the Board of Trade is responsible, whilst at the same time he was placed in a similar position as regards the Government railways, with the management of which he was himself charged.

The first definite proposal with regard to State railway construction in Western Australia is found in a report of a Select Committee of the Legislative Council on Public Works, printed in 1871, when

* Opened for traffic on 1st February, 1905.

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several lines starting from Fremantle were proposed. At the time nothing appears to have resulted from this inquiry, but in August, 1872, another Select Committee of the Legislative Council inquired into the practicability of making a railway to the Eastern Districts, This Committee submitted to the Legislature estimates of the cost of constructing, maintaining, and working a line of 80 miles in length, together with an estimate (£9,700 per annum) of the probable traffic returns of such a line. Three alternative estimates were submitted of the cost of construction, the first, £1,089 per mile, being for a permanent way with jarrah rails, faced at curves with 3 inch by ½ inch iron, similarly to a line then in course of construction by the Rockingham Timber Company, which was inspected by the Committee on a locomotive which reached a speed of 15 miles an hour over such rails. The second estimates provided for 30lb. iron rails on longitudinal sleepers, which was to cost £1,266 per mile; and the third for 40lb. iron rails only, at £1,314 per mile. The rolling-stock and equipment —the latter including stations, buildings, water tanks, pumps, sidings, etc.—were estimated at £16,600 for the 80 miles.

The question of a railway to the Eastern Districts, however, was superseded about this time by the necessity for providing rail communication between Geraldton and Northampton, and the Loan Act of 1872, finally assented to on 15th August, 1872, after considerable correspondence between the Governor and the Colonial Office in London, authorised the raising of a sum of £1,675 for "preliminary railway surveys in the Champion Bay and mining districts."

These questions appear to have come under the general administration of the Surveyor General, the Hon. Malcolm Fraser, who at that period controlled all public works. In 1874, the Governor proposed to the Colonial Office the establishment of a separate department of Public Works. Considerable correspondence on the subject followed until the appointment of the Hon. J. H. Thomas, C.E., as "the Government Engineer," who reported direct to the Governor under that title in July, 1876, as Director of Public Works in May, 1877, as Director of Public Works and Engineer of Railways in May, 1878, and as Commissioner of Railways in July, 1881. Under this title the principal executive and administrative authority of the Department has since been carried on. On the death of Mr. Thomas, in July, 1884, Mr. Clayton T. Mason, M.I.C.E., filled the position temporarily until the arrival of the Hon. J. Arthur Wright, C.E., from England in the following year. Mr. Wright carried on the several duties of Commissioner of Railways, Director of Public Works, and Engineer-in-Chief until the close of 1889, when he resigned his appointments to undertake the general management of the affairs of the West Australian Land Company at Albany. It was then decided to separate the railways from the Works Department, and Mr. Clayton T. Mason, M.I.C.E., who had meantime held the appointment of General Manager of Railways, became Commissioner of Railways again on 1st January, 1890.

On the institution of Responsible Government, the office was converted into a Ministerial one, and the Hon. H. W. Venn, M.L.A.,

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was appointed to the dual portfolio of Commissioner of Railways and Director of Public Works. He took over the duties of Mr. Clayton T. Mason, on 29th December, 1890, who, however, continued in the service of the department under the title of General Manager and Engineer for Existing Lines. That portion of those duties relating to the supervision of private railways—of which by this time there was considerable mileage—fell practically into disuse (if, indeed, it had at any time been actively exercised), and the Commissioner of Railways thenceforward devoted his attention almost exclusively to the Government lines. It is for this reason that it has not been found practicable to include in this article detailed information relating to private railway construction.* In 1891, Mr. Mason was offered and accepted the position of Collector of Customs, and thereupon the Engineer-in-Chief (the late Mr. C. Y. O'Connor, C.M.G.), took over the general management, in addition to the performance of his other arduous and numerous duties. This step appears to have been prompted by the fact that the Commissioner carried out all works of construction through the medium of the Public Works Department—even to improvements and additions to lines open for traffic, and the purchase of rolling-stock therefor. The development of the business, however, progressed to such extent that the necessity for further skilled supervision almost immediately became apparent, and, the Government deciding to follow the example set by New South Wales in similar circumstances, the Agent General was instructed to obtain the services of an experienced officer from one of the leading British companies. The selection fell on Mr. John Davies, then occupying a position on the staff of the London and North-Western Railway—the Railway which had given Mr. Eddy to New South Wales—and Mr. Davies accordingly took up the duties of General Traffic Manager of the Western Australian Government Railways on 9th January, 1892.

Towards the end of 1895 and during the earlier months of 1896 traffic over the railways increased in almost unprecedented proportions, owing to the rapidity of mining developments and to the rush of immigration attracted thereby. General goods (and machinery in particular) were being imported in quantities which the railway organisation had never previously experienced, quantities which were beyond the capacity of the facilities and rolling-stock at the command of the department, and considerably also beyond the capacities of the limited staff, recruited of necessity in undue proportion from a class having little or no previous traffic experience. The result was that goods were landed at Fremantle and allowed to remain there, and what was known at that time as the "Block" took place, which led to popular dissatisfaction and public meetings of indignation. The upshot was that Mr. Venn retired from office. During the period he had occupied the Ministerial seat the mileage of the railways had increased from 188 to 580 miles, the train

* For particulars on this subject, collected by the Government Statistician, see next sub-chapter, relative to "Private Railway Lines."

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mileage per annum from 280,000 to over 1,500,000, and the revenue from £45,000 to £500,000 per annum.

After a few weeks, during which the Premier, Sir John Forrest, acted as Commissioner, Mr. F. H. Piesse, M.L.A., was appointed to the vacant portfolio, which he held from 1st April, 1896, until 8th September, 1900, when he resigned owing to a disagreement with his colleagues as to the policy to be adopted towards certain labour organisations of railway employees. His tenure of office marked an epoch in Western Australian railway history. As soon as he had had time to become acquainted with the detailed working of the department, Mr. Piesse acceded to Mr. O'Connor's request to be relieved of the responsibilities attaching to him in his capacity of Acting General Manager, the duties of the position of Engineer-in-Chief being at that time more than sufficient to engage his whole attention. On 1st January, 1897, the Commissioner appointed Mr. John Davies as General Manager, the position of Chief Traffic Manager being filled by the appointment of Mr. John T. Short, who had occupied a corresponding position in the West Australian Land Company's Great Southern Railway, then recently purchased by the Government. The internal system of organisation was greatly improved, particularly by the appointment of officers in charge of the various outlying districts, by the institution of a system of regular monthly conferences, at which the Commissioner met his principal officers for the discussion of the affairs of the department, and by his taking into his own direct control the administration of capital expenditure and the execution of all works thereunder affecting lines open for traffic. The construction of new railways or extensions was left as formerly, and, as it has continued to the present time, to be carried out by the Minister controlling the Department of Public Works. Mr. Piesse further made substantial reductions in fares and freight charges, notably by the removal of the 50 per cent. extra charge over goldfields lines, and also carried out or initiated many important works of improvement, of which the most prominent were the Fremantle-Bellevue and Coolgardie-Kamballie duplications, with their attendant alterations and additions to the stations and works connected therewith, and the reduction of grades where practicable. At the same time very large orders for locomotives, carriages, and wagons were promptly placed and executed. During the financial year, at the close of which he assumed office (1895-1896), 580 miles of railway were worked, 1,679,816 passengers and 435,855 tons of goods were carried, while for the last complete financial year of his administration (1899-1900) the figures were 1,355 miles, 6,225,068 passengers, and 1,384,040 tons of goods. At the same time, and notwithstanding the reductions in the basis of revenue, the net earnings of the railways, after payment of working expenses and interest charges, amounted to £162,099, as compared with £177,352 in 1895-1896.

Mr. Piesse was succeeded by the late Mr. B. C. Wood, M.L.A., whose appointment dated from the 8th September, 1900. Except in the matter of the recognition of the employees' unions or associations, to which his predecessor had been opposed, Mr. Wood

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carried on the policy and works initiated by the previous Minister until his resignation, with the rest of his colleagues, on 5th June, 1901, when the Leake Government succeeded that of Mr. Throssell.

Hitherto the positions of Commissioner of Railways and Director of Public Works had been combined, but Mr. Leake considered that the time was now ripe for their separation, and Mr. J. J. Holmes, M.L.A., whose criticisms of the railway administration under the Forrest and Throssell *régimes* had attracted considerable attention, was appointed the first Minister in charge of the Railway Department. The strong views he held led to a disagreement of opinion with his General Manager, and the rupture ended with the suspension of the latter gentleman from office, which extreme step was taken on 23rd August, 1901. After some delay, the charges leading up to this measure were investigated by an independent board of inquiry, of which Mr. Pendleton, Commissioner of Railways for South Australia, was President, and although Mr. Davies was exonerated of all but one or two minor errors of judgment, the effect left on his mind was such that he preferred not to resume his position, but resigned the service immediately after his re-instatement, being allowed leave until 30th June, 1902, and a retiring honorarium of £1,000, in recognition of his services to the State.

In November, 1901, the Leake Government was defeated, and Mr. A. E. Morgans, M.L.A., formed a Government, wherein Mr. Frank Wilson, M.L.A., filled the portfolio of Commissioner of Railways. He failed to be re-elected by his constituents, however, and shortly afterwards the Morgans Government resigned, and were succeeded by Mr. Leake, who returned to office with increased strength. Mr. Holmes, however, declined to again accept office, and the appointment of Minister of Railways was offered to and accepted by Mr. Walter Kingsmill, M.L.A., who had previously occupied the position of Minister for Works.

Mr. Kingsmill's principal work, during the period he held the appointment, lay in the revision of the Rate Book, as it was found that increases in wages and other items of expenditure had necessitated some increase in the basis of revenue. At the same time the view was gradually forced upon his mind that the detailed control of the department and its now enormous ramifications could not be efficiently performed by Ministers of the Crown, who came and went with the swing of the pendulum of public opinion, and who also had their own private business interests to attend to in addition. Having come to this conclusion, and feeling that continuity in the administration of the department was an essential to its success, the Government (in which Mr. Walter James, K.C., had become Premier, on the death of Mr. Leake in June, 1902), on the recommendation of Mr. Kingsmill, decided to revert to the position contemplated when the office of Commissioner of Railways was instituted by the Railway Act of 1878, that is to say, to fill it

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by the appointment of a gentleman who should be an officer of the Civil Service, and whose qualification should rest rather on broad commercial experience than on close intimacy with the details of railway life and work, on which points it was considered that the advice of two co-commissioners or of the officers responsible for the respective branches of the department should suffice. Acting on the policy suggested by these considerations, the Government offered the position to Mr. W. J. George, at that time representing the Murray constituency in the Legislative Assembly. Mr. George accepted the offer, and commenced the duties of the position on 2nd July, 1902. On the same date a re-arrangement of the Cabinet took place, whereby the Minister for Works, Mr. C. H. Rason, took over the duties of Minister for Railways, and Mr. Kingsmill became Colonial Secretary. The latter, on the first opportunity, introduced a Bill into Parliament providing for the appointment, for five years, of a board of three railway commissioners, to be free from political influence, and of whom Mr. George was to be chairman. The powers, duties, and conditions of tenure of office were defined on the basis of the agreement which had been made between Mr. George and the Government.

The proposal for three commissioners did not meet with the approbation of members, however, and it was therefore dropped, the Bill being altered to provide for one commissioner only, in which form it received the Vice-regal assent on 20th December, 1902. The old-time Acts, of which the Act in question (2 Ed. VII., No. 35) was an amendment, continued to remain in force, with the exception that the powers which the latter did not specially confer upon the Commissioner were transferred to the Minister for Works and Railways, and consequently certain anomalies and ambiguities were continued, until assent was given on 16th January, 1904, to the consolidating Government Railways Act, 1904. This Act definitely placed the administration of all Government Railways open for traffic in the hands of the Commissioner, defining his responsibilities and powers in relation thereto, removing the administration from the control of politicians, and relieving him of the supervision of private railways.

Organisation.

The department is divided, for purposes of organisation, into four mains divisions or branches on the lines usual with railways throughout the British Empire; that is to say, into the Administrative or General, Traffic, Locomotive, and Way and Works Branches.

The Administrative Branch comprises the Commissioner's office, the Accountaney, Audit, and Stores Branches. In the first named, all matters of administrative policy or particular importance beyond the ordinary routine work are dealt with, and subjects affecting more than one branch of the service are also usually

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decided. The Accountancy Branch, under the Chief Accountant, deals with all financial matters, revenue, expenditure, and accounts. This branch formerly comprised the railway audit, but since 1st July, 1903, the latter duties have been placed under a distinct branch, controlled by the Chief Railway Auditor, the object being to obtain more frequent and thorough examination of accounts, and check against irregularity. The Stores Branch, organised in March, 1903, under the Chief Railway Storekeeper, buys, sells, and distributes all material and stores required by the various branches for the operation of the service. Until March, 1903, these functions were performed by the Government stores, an organisation which formed part of the Treasury Department. This was found somewhat cumbersome in practice owing to its being separate and distinct from the Railway Department as regards control.

The Traffic Branch, that is to say, the branch which controls the operation of traffic, thus realising the object for which the railways were brought into existence, is presided over by the Chief Traffic Manager. There is not, as is frequently the case elsewhere, any distinct separate control of the passenger or coaching traffic and that of the goods traffic, so large a number of mixed trains and other arrangements wherein passengers and goods are combined in one service being necessary for economical working in a sparsely-populated country, that it has not been considered of advantage to bring about such separation. For purposes of working the branch is divided into four districts, each in charge of a responsible officer, called District Superintendent. The districts are as follows:—

District Superintendent stationed at—	District.
Perth ...	Fremantle to Albany, Northam, and Goomalling, including all Branch Lines, and East Perth to Brunswick Junction
Kalgoorlie ...	Northam to Leonora (exclusive of the Goomalling Branch), Lakeside, and Kanowna
Bunbury ...	Brunswick Junction to Collie, Bunbury, Busselton, and Bridgetown
Geraldton ...	Geraldton to Nannine, Walkaway, and Northampton

All matters of local traffic import should, primarily, be referred to these officers, as it is upon reports obtained from them that the

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Chief Traffic Manager necessarily relies to a certain extent in the numerous matters placed before him by the public.

The Locomotive Branch, under the superintendence of the Chief Mechanical Engineer, does all that is necessary for the operation of the rolling-stock required by the Traffic Branch for the purpose of meeting the requirements of the customers and passengers of the department. Its work naturally divides itself into repairing and running. The workshops are in course of removal from the old-time buildings at Fremantle to the new buildings which are on the verge of completion at Midland Junction. The former have been altogether outgrown by the branch, necessitating the construction by the Public Works Department of buildings more suitable for present requirementst These latter have been designed and constructed on the mos: advanced principles, and equipped with the latest mechanical appliances. Their occupation and utilisation when fully completed will, it is anticipated, no doubt have a marked effect in reducing the expenditure of this branch, which of late years has been rendered comparatively high by reason partly of the inadequate facilities at Fremantle. The expenses of the several water famines through which the department has passed during the last few years have also been mainly borne by this branch and have contributed, in combination with inadequate workshop accommodation, to produce the comparatively high ratio of expenditure by that branch, the water difficulties of the summer of 1901-1902 having been estimated to have added to the expenses of this branch no less than £80,000 in fitting wagons for the haulage of water and in the running of 168,000 train miles exclusively for the conveyance of water for locomotive purposes. The Chief Mechanical Engineer is assisted by the Works Manager and the Chief Rolling-stock Inspector, whose duties are, as far as the circumstances of the branch admit, analogous to those of the District Officers of the other branches. The control of all telephone lines, electric lighting, etc., and other electrical work used for the business of the department are also under the supervision of the Chief Mechanical Engineer. The department's operations have not hitherto included the local construction of rolling-stock, which, with the exception of a few engines and wagons urgently required and obtained from South Australia and America, has all been imported from Great Britain, and put together on arrival at the Fremantle workshops. A contract was, however, let in July last for the construction by a Fremantle firm of eighteen passenger coaches, and the construction of five hundred goods wagons has been commenced during the financial year 1904-1905 by the Department at the Midland Junction workshops.

The Way and Works Branch is under the control of the Chief Engineer for Existing Lines, who is responsible to the Commissioner for the proper and efficient maintenance of the railways, and all buildings, bridges, and other works connected therewith. All construction works are also carried out by this branch so far as lines

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open for traffic are concerned. The Chief Engineer is assisted by an Assistant Engineer and by four Resident Engineers, who are responsible for the districts under their control.

Resident Engineer stationed at—	District.
Perth	Eastern and South-Western Railways, viz.: Fremantle to Werribee, Bunbury, Busselton, and Bridgetown, including all branch lines.
Northam ...	Werribee to Nangeenan, and Spencer's Brook to Albany, including branches.
Coolgardie ...	Eastern Goldfields Railway, viz.: Nangeenan to Leonora, Kanowna, and Lakeside.
Geraldton ...	Northern Railway, viz.: Geraldton to Nannine, Northampton, and Walkaway.

The interlocking and signalling arrangements are also under the control of the Way and Works Branch. Interlocking was first installed in Western Australia during the year ending 30th June, 1898.

In regard to the expenditure by the respective branches, the statement hereunder will serve to convey an idea of the proportions of the whole cost for which each branch is responsible, on the basis of organisation, of which an outline has been given above:—

Branch.	1897-1898.	1898-1899.	1899-1900.	1900-1901.	1901-1902.	1902-1903.	1903-1904.
Locomotive ..	42·01	44·23	49·37	48·67	55·38	53·68	51·21
Way and Works	20·53	20·78	19·07	19·11	17·64	19·11	20·51
Traffic	35·09	32·40	29·86	28·99	24·97	25·42	26·35
General administration	2·37	2·64	1·70	2·23	2·01	1·79	1·92
	100·00	100·00	100·00	100·00	100·00	100·00	100·00

The most striking feature of this statement lies in the high proportion of expenditure by the Locomotive Branch, which may be said to be due to the congestion of the Fremantle workshops and the expense of water supply already referred to, combined with the excessively high prices paid for fuel during the last four years shown. The last-named item has recently been materially reduced, the second is considerably relieved now that the Coolgardie Water Scheme is supplying the department from Chidlow's Well to

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Kalgoorlie (345 miles); the first will probably show material improvement as the new Midland Junction workshops are completed and fully utilised, when economical conditions of working will be practicable.

The following statement of the details of expenditure for financial years 1901-1902, 1902-8, and 1903-4 by this branch of the service (exclusive of electrical charges) may, in view of the high percentage proportion, be of interest:—

Particulars.	Expenditure.						Average cost per train mile in pence.
	Year.	Salaries.	Wages.	Stores.	Incidentals.	Total.	
		£	£	£	£	£	
Salaries, travelling and incidental expenses; stationery and printing in connection with loco. running and repairs	1902	19,013	2,216	263	1,733	23,185	1·23
	1903	18,392	2,936	157	1,794	23,279	1·21
	1904	17,226	4,425	1,303	2,170	25,124	1·31
Wages, expenses, and allowances of drivers, firemen, cleaners, fuelmen, storemen, and others in connection with the running of locomotives, and repairs and renewals to tools and other running appliances	1902	...	161,240	2,976	1,144	165,360	8·80
	1903	...	170,681	1,397	1,453	173,531	9·03
	1904	...	155,707	1,490	1,080	158,277	8·27
Coal, coke, and wood	1902	...	...	131,376	...	131,376	6·99
	1903	...	...	113,717	...	113,717	5·91
	1904	...	...	108,173	...	108,173	5·66
Purchase of water; wages and stores for pumpers, and repairs to pumps	1902	...	8,782	37,288	...	46,070	2·45
	1903	...	7,646	25,163	...	32,809	1·70
	1904	...	7,359	28,316	...	35,675	1·86
Oil, tallow, and other stores for locomotive running purposes	1902	...	...	9,873	...	9,873	·52
	1903	...	...	11,070	...	11,070	·57
	1904	...	...	9,459	...	9,459	·49
Wages and materials; repairs and renewals to locomotives...	1902	...	75,844	45,589	312	121,745	6·48
	1903	...	81,546	31,382	746	113,674	5·92
	1904	...	82,730	16,421	535	99,686	5·21
Salaries, travelling and incidental expenses, stationery and printing in connection with carriage and wagon repairs and renewals	1902	4,327	1,910	267	283	6,887	·37
	1903	4,835	2,389	162	779	8,165	·42
	1904	5,142	2,748	460	699	9,049	·47
Wages and material; repairs and renewals to carriages ...	1902	...	15,724	8,642	31	24,397	1·30
	1903	...	16,603	8,271	73	24,947	1·30
	1904	...	15,125	5,233	116	20,474	1·07
Wages and material; repairs and renewals to wagons	1902	...	40,057	38,300	85	78,422	4·17
	1903	...	37,766	32,231	290	70,287	3·66
	1904	...	41,918	24,054	211	66,163	3·46
Wages and material; greasing and oiling coaching and goods stock	1902	...	11,130	2,129	11	13,270	·71
	1903	...	13,697	3,093	53	16,843	·88
	1904	...	12,594	3,190	4	15,788	·82
Totals	1902	23,340	316,883	276,663	3,699	620,585	33·04
	1903	23,227	333,264	226,643	5,188	588,322	30·62
	1904	22,368	322,606	196,069	4,825	547,868	28·62

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In addition to the above, the Locomotive Branch has borne the debits in respect of maintaining the capital value of locomotives, by replacing annually from working expenses one twenty-fifth of the value of locomotives in stock. This policy is based on an assumed life of twenty-five years for a locomotive. During the years mentioned considerable sums also have been spent in similar manner in rebuilding wagon stock which had become defective or obsolete in design. The expenditure on these accounts has been as follows:—

1901-1902	£49,000
1902-1903	£54,486
1903-1904	£33,787

STAFF.

The total number of hands employed by the Railway Department on 30th June in each year, and the average number employed permanently throughout the years in question, exclusive of casual and construction hands, are respectively shown below:—

Year.	Total number on pay sheet on 30th June.	Average number permanently employed.
1901-1902...	6,053	5,211
1902-1903...	6,241	5,618
1903-1904...	6,747	5,616

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Description of Lines.

As previously stated, the railway system of the State is divided into five divisions or sections, and possibly some description of the leading features of these sections may be of general interest.

1. Eastern Railway, consisting of the following subdivisions:—

Subdivision.	Length of Main Line.			Highest Station.		Lowest Station.		Height of Line above Sea.		Steepest Gradnt.	Weight of Rails per yard.	Date when opened for Traffic.
	Double.	Single.	Total.	Name.	Height.	Name.	Height.	Highest.	Lowest.			
	Mls. Chs.	Mls. Chs.	Mls. Chs.		Feet.		Feet.	Feet.	Feet.		Lbs.	
Fremantle-Guildford ...	19 63	...	19 63	Leederville ...	107	Fremantle ...	5	117	5	1 in 80	58	Mar. 11th, 1884
Guildford-Chidlow's Well	3 79	17 12	21 11	Mundaring ...	1,034	Guildford ...	25	1,055	25	1 ,, 25	58	a Mar. 1st, 1881
Perth Racecourse Branch	1 69	...	1 69	Racecourse ...	19	... ...	...	22	9	1 ,, 80	58	b Jan. 1st, 1885
Chidlow's Well-York ...	...	48 72	48 72	Chidlow's Well	980	Spencer's Brook	520	1,068	520	1 ,, 45	60	1885
York-Beverley	...	20 46	20 46	Edwards' Crg.	653	York	579	669	579	1 ,, 60	60	c Aug. 5th, 1886
Spencer's Brook - Northam	...	5 73	5 73	Spencer's Brk.	520	Northam ...	490	520	490	1 ,, 80	60	d October, 1886
Clackline-Newcastle ...	...	14 34	14 34	Hoddy's Well	1,061	Lloyd's ...	463	1,147	443	1 ,, 40	46¼	e Jan. 3rd, 1888
Mahogany Creek Deviation	...	11 71	11 71	Lion Mill ...	883	Bellevue Jun.	57	971	57	1 ,, 50	60	f July 1st, 1896
York-Greenhills	...	14 33	14 33	Greenhills ...	706	York	579	828	579	1 ,, 60	45, 46¼	Sept. 1st, 1898
Fremantle - Owen's Anchorage	...	2 60	2 60	... ...	...	Fremantle ...	5	25	5	1 ,, 72	58	g Oct. 22nd, 1898
Owen's Anchorage-Woodman's Point	...	2 34	2 34	... ...	...	... ...	...	34	15	1 ,, 75	58	July 1st, 1903
Upper Darling Range ...	.	15 17	15 17	Heidelberg ...	1,045	Atkin's Siding	37	1,045	37	1 ,, 27	46¼	h July 1st, 1903

(a.)—*Via* Smith's Mill—Relaid with 58lb. rails in July, 1893. Present "down" line, Perth-East Perth, in June, 1896. (b.)—Duplicated and relaid with 58lb. rails, extension of 49 chains, opened on 21st October, 1897. (c.)—Relaid with 60lb. rails in June, 1893. (d.)—Relaid with 60lb. rails in April, 1896. (e.)—Line extended 23 chains in 1896. (f.)—Exclusive of second line from Bellevue to Midland Junction, now used as a "down" road of double line. (g.)—Section from Fremantle to W.A. Smelting Works opened on 9th July, 1898. (h.)—Purchased from Canning Jarrah Timber Company.

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That portion of this section between Fremantle and Bellevue carries the metropolitan-suburban traffic of the capital of the State, its port, and the suburbs of both. Fremantle, being the principal port of entry into the State, carries, of course, a large through shipping traffic, both inwards and outwards, for all parts, and is, in addition, the first and last port of call in Australia for the Indian and European mail steamers. The line runs Eastward to Northam, branching to the South at Spencer's Brook towards the Great Southern district, and serves the agricultural area known as the Avon Valley.

2. Eastern Goldfields Railway, built in the undermentioned sections:—

Subdivision.	Length of Main Line.			Highest Station.		Lowest Station.		Height of Line above Sea.		Steepest Gradient.	Weight of Rails per yard.	Date when opened for Traffic.
	Double.	Single.	Total.	Name.	Height	Name.	Height	Highest.	Lowest			
	Mls. Chs.	Mls. Chs.	Mls. Chs.		Feet.		Feet.	Feet.	Feet.		Lbs.	
Northam-Southern Cross ...	...	170 01	170 01	Nulla-Nulla ...	1,387	East Northam	489	1,452	489	1 in 60	45 & 58	a. July 1st, 1894
Southern Cross-Boorabbin ...	...	60 20	60 20	Koorarawalyee	1,522	Southern Cross	1,163	1,572	1,140	1 ,, 60	45	b. July 1st, 1896
Boorabbin-Kalgoorlie	23 62	54 28	78 10	Ubini	1,495	Kalgoorlie ...	1,234	1,537	1,192	1 ,, 60	45	c. Jan. 1st, 1897
Kalgoorlie-Boulder (Lakeside)	5 30	3 61	9 11	Hannan Street	1,290	Lakeside ...	1,078	1,290	1,078	1 ,, 60	60	d. Nov. 8th, 1897
Kalgoorlie-Kanowna	...	12 65	12 65	Kalgoorlie ...	1,234	Kanowna ..	1,226	1,320	1,195	1 ,, 60	58	June 15th, 1898
Kalgoorlie-Menzies	...	80 39	80 39	Bardoc ...	1,411	Gidgi	1,129	1,458	1,124	1 ,, 60	58	Feb. 13th, 1899
Brown Hill Loop	...	4 41	4 41	Crœsus ...	1,385	Trafalgar ...	1,315	1,385	1,274	1 ,, 60	58	Mar. 17th, 1902
Northam-Goomalling	...	30 00	30 00	Goomalling ...	782	East Northam	489	804	484	1 ,, 60	45	July 1st, 1902
Menzies-Leonora	...	80 40	80 40	Niagara ...	1,460	Gwalia ...	1,219	1,583	1,167	1 ,, 65	58	Jan. 12th, 1903

(a.)—86 miles to 100¼ miles relaid with 58lb. rails, 1897. 76¾ miles to 86 miles and 100¼ miles to 126 miles relaid with 58lb. rails, 1898. 126 miles to 179 miles and 241 miles to 248 miles relaid with 58lb. rails, 1900. 180¾ miles to 191¼ miles relaid with 58lb. rails, 1901. 191¼ miles to 241 miles relaid with 60lb. rails, 1902. (b.)—Relaid with 60lb. rails in 1902. (c.)—Duplicated between Coolgardie and Kalgoorlie, 4th August, 1901. Relaid with 60lb. rails between Boorabbin and Coolgardie in 1902. (d.)—Duplicated to Kambalda, 29th April, 1901.

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For about 100 miles East of Northam this line runs through country gradually being settled by an agricultural population, and rapidly gaining favour among selectors. Thence eastward the gold-mining industry provides its principal traffic in the haulage of general goods for the population resident in the various mining localities, machinery, timber, firewood, and other necessities of the gold-mining industries. Towards Leonora good pastoral country, which is being rapidly stocked, is met with, where water of sufficiently good quality for stock purposes is obtained at shallow depths. Throughout the entire section water supply for railway purposes originally had to be provided by conservation in dams or reservoirs, and in times of lengthy intervals between rainfall condensing has been necessary, the department having erected at Coolgardie a condensing plant capable of a daily output of 100,000 gallons. The Coolgardie Water Scheme, however, is now available from Northam to Kalgoorlie, and renders this section practically independent of the former alternatives of water haulage or condensing in dry seasons. Around Kalgoorlie a suburban traffic, as between that place and Coolgardie, Kanowna, and Boulder City is carried.

3.—South-Western Railway.

Subdivision.	Length of Main Line. (*Single.)		Highest Station.		Lowest Station.		Height of Line above Sea.		Steepest Gradient.	Weight of Rails per yard	Date when opened for Traffic.
			Name.	Height.	Name.	Height.	Highest.	Lowest.			
	Mls.	Chs.		Feet.		Feet.	Feet.	Feet.		Lbs.	
Bunbury-Boyanup	16	04	Boyanup ...	122	Bunbury ...	7	125	2	1 in 90	45	a Mar. 12th, 1891
East Perth-Pinjarra	53	28	Beenup	197	Pinjarra ...	28	197	11	1 ,, 75	46½	May 2nd, 1893
Pinjarra-Picton Junction ...	56	71	Drakesbrook ...	140	Picton Junction	28	140	26	1 ,, 75	46½	Aug. 22nd, 1893
Boyanup-Minninup (Donnybrook)	9	58	Donnybrook ...	208	Boyanup ...	122	208	122	1 ,, 80	45	Nov. 16th, 1893
Boyanup-Busselton	27	78	Boyanup ...	122	Busselton ...	9	124	7	1 ,, 75	45	Dec. 26th, 1894
Canning Racecourse Branch ...	0	46	... ...	...	... ...	...	34	26	1 ,, 69	46½	Feb. 22nd, 1896
Bunbury Racecourse Branch ...	1	48	Racecourse ...	16	.. ... .	..	28	5	1 ,, 67	58	Nov. 17th, 1897
Brunswick-Colliefields	25	63	Worsley ...	774	Brunswick Junct.	106	839	105	1 ,, 40	60	July 1st, 1898
Donnybrook-Bridgetown... ...	42	26	Greenbushes ...	947	Donnybrook ...	208	977	208	1 ,, 40	60	Nov. 1st, 1898
Collie-Collie Boulder	5	72	Cardiff	634	Collie Burn ...	608	666	598	1 ,, 42	58	Nov. 2nd, 1903

(a.) Relaid with 45lb. rails in August, 1896. * No double line.

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This section serves some of the oldest agricultural settlements of the State, and passes through country unsurpassed in the Commonwealth. It is, in addition, the principal timber line of the State, extensive jarrah forest concessions being held at numerous points throughout its length, from which timber is consigned to Bunbury, Busselton, and Fremantle for direct export, and to Mundijong (formerly called Jarrahdale Junction) for transfer to a privately-owned line terminating at the port of Rockingham. The whole of the output from the Collie coal mines also affords traffic for this section, and the line is well used by pleasure-seekers visiting the health resorts of Mandurah (*via* Pinjarra), Bunbury, and Busselton; near the last-named town is the wonderful caves district, which seems likely to become famous throughout the world.

4.—Great Southern Railway.

(Beverley-Albany Jetty.)

Length of Main Line (single)	243 miles
Highest Station	Narrogin
Height	1,114ft.
Lowest Station	Albany.
Height	8ft.
Maximum height above Sea	1,313ft.
Minimum height above Sea	8ft.
Steepest Gradient	1 in 55
Weight of Rails per yard	46½lbs.
Date when opened for Traffic by the Government	Dec. 1st, 1896

Constructed by the West Australian Land Co., and purchased by the Government in 1896, this line depends principally upon agriculture for its traffic. Since it became available for the purpose no district in the State has been more rapidly settled and brought under cultivation than has that adjoining the Great Southern Railway, and the results attained from wheat and fruit appear to have given thorough satisfaction to the settlers. Very extensive clearing operations, reaching practically from Beverley to Mount Barker, are in progress, and there is a prospect of an early export trade developing, for which every facility is being provided by the Railway Department. Albany is the principal health resort of the State, its cool, bracing climate being highly invigorating.

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5.—Northern Railway.

Particulars.	Subdivisions.				
	Geraldton-Northampton.	Geraldon-Walkaway.	9-Mile Junction-Mullewa.	Mullewa-Cue.	Cue-Nannine.
Length of Main Line (Single) ...	Miles. Chs. 34 17	Miles. Chs. 19 11	Miles. Chs. 57 07	Miles. Chs. 196 48	Miles. Chs. 46 00
Highest Station .. Height ... ft.	Northampton 561	Walkaway 91	Mullewa 905	Lennonville 1,542	Tuckanarra 1,562
Lowest Station ... Height ... ft.	Geraldton 5	Northampton Junction 18	Mullewa Junction 76	Mullewa 905	Nallan 1,389
Maximum height above Sea ... ft.	646	98	976	1,584	1,632
Minimum height above Sea ... ft.	5	18	79	878	1,377
Steepest Gradient ...	1 in 30	1 in 100	1 in 50	1 in 60	1 in 60
Weight of Rails per Yard .. lbs.	35	46½	45	45	45
Date when opened for traffic	1879 a July 26th	1887 July 21st	1894 Nov. 21st	1898 July 1st	1908 June 1st

a. 0 to 2 miles relaid with 46½lb. rails in July, 1897.

What is now described as the Northampton branch is, in reality the oldest piece of railway line in the State. Commenced in 1874 originally to serve the then prosperous copper mining industry, this subdivision now carries but little ore, its main source of revenue being derived from service to the squatters and to the orchardists of the Chapman River district. The line from Geraldton to Walkaway taps the rich wheat-growing area known as the Greenough Flats, and connects with the privately-owned Midland Railway at the latter point. The main line is from Geraldton to Nannine, and derives its means of existence from the pastoral industry along its Western half, and from the mining industry of the Murchison Goldfield, further East. Fresh water is available by means of wells along this line, but of such quality as to be unsuitable for locomotive purposes. Conservation and condensing are therefore resorted to, though in dry seasons the supplies from the wells have, of necessity, to be used at any cost.

Safe-working Appliances.

The number of stations provided with interlocked signalling is 132 out of 343, and includes all points where any density of traffic occurs. In additions to these, the system is being extended as circumstances permit, particularly between the coast and the Eastern Goldfields, traffic on which line is of a very heavy nature.

Although it was only in 1897 that the policy was introduced of improving upon the old staff and ticket system of working by the protection of busy portions of the system by means of interlocked signalling, and of working trains over the single lines by the aid of

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electric signalling apparatus, that policy has been rapidly pushed forward. The return appended shows the progress effected in these important matters:—

Date 30th June.	Number of Miles opened for traffic.			Number of miles of line worked under Absolute Block, or Train Staff and Ticket Systems, under Rules which are in accordance with the Regulations of the Board of Trade, England.					Number and percentage of places which have or have not points and Signals Interlocked.				
				Double.		Single.		Total.	Number of Places.			Percentage.	
	Double.	Single	Total.	Sykes' System.	Other Block.	Electric Staff.	Staff and Ticket with Telephone.		Interlocked.	Not Interlocked.	Total.	Interlocked.	Not Interlocked.
1890 ...	...	183	183	...	...	...	...	...	...	32	32	...	All
1898 ...	26	966	992	...	26	343	623	992	29	165	194	14·87	85·13
1899 ...	26	1,329	1,355	...	26	515	814	1,355	55	202	257	21·40	78·60
1900 ...	26	1,329	1,355	...	26	521	808	1,355	66	193	259	25·48	74·52
1901 ...	31	1,324	1,355	1	52	614	687	1,355	76	199	275	27·63	72·37
1902 ...	55	1,305	1,360	2	51	521	786	1,360	91	203	294	30·85	69·15
1903 ...	55	1,461	1,516	2	53	544	917	1,516	98	223	321	30·53	69·47
1904 ...	62	1,479	1,541	2	60	554	925	1,541	132	211	343	38·48	61·52

WATER SUPPLY.

The main natural difficulty with which engineers and management of the Western Australian railways have had to contend has been found in the dryness of practically the whole of the country

traversed by their system. Excepting only the South-Western lines, the water supply generally is obtained from dams or reservoirs which are dependent entirely upon the rainfall. In the goldfields districts this proves somewhat precarious, and in view of the absolute water famines which have from time to time occurred, a large condensing plant (as previously referred to) capable of producing 100,000 gallons of water daily, was erected at Coolgardie early in 1899, and although the completion of the Coolgardie Water Scheme has now rendered its future use unnecessary, there have been occasions when the traffic has been maintained only by the use of its condensed water. The statement published hereunder will convey some idea of the extent to which it has been necessary to go in providing for conservation of water:—

Name of Reservoir.	Mileage.		Capacity in Gallons.	Cost of Construction.	Gravitation or Steam Pump.
	M.	C.		£	
Eastern Railway—					
Midland Junction	22	24	11,755,000	1,354	Steam Pump (from artesian bore)
Chidlow's Well	39	20	117,000,000	8,808	Steam Pump
Clackline Junction	61	09	5,478,000	6,798	do
Spencer's Brook	70	55	21,112,000	7,797	† Gravitation
Burlong Pool	74	54	28,000,000	*	Steam Pump
Northam	76	48	11,291,000	7,773	Gravitation
Eastern Goldfields Railway—					
Tammin	130	00	94,011,000	12,344	Gravitation
Kellerberrin	144	11	3,800,000	3,872	Steam Pump
Merredin	179	52	7,470,000	5,366	do
Burracoppin	198	65	8,326,000	6,736	Gravitation
Bodallin	216	56	16,808,000	8,708	do
Parker's Road	233	71	7,081,000	9,131	Steam Pump
Southern Cross	247	68	643,000	2,411	do
Yellowdine No. 1	268	12	1,112,000	3,270	do
,, No. 2	268	12	2,907,000	5,966	do
Karalee	280	20	10,642,000	15,460	do
Koorarawalyee	290	48	1,524,000	3,950	do
Boorabbin No. 1	308	04	968,700	15,001	do
,, No. 2	308	04	4,847,000		
Boondi	313	52	4,845,000	5,994	do
Woolgangie No. 1	323	10	1,302,760	3,772	do
,, No. 2	323	10	5,573,000	5,550	do
Bullabulling No. 1	344	30	1,198,000	2,912	do
,, No. 2	344	30	3,592,000	5,000	do
Coolgardie	362	40	500,000	...	do
Broad Arrow	409	40	10,000,000	15,430	do
Bardoc	417	48	2,045,400	13,415	do
Goongarrie	440	75	1,048,000	11,193	do
† Niagara	490	40	38,750,000	61,577	do
Great Southern Railway—					
195-mile (Yornan)	157	28	6,230,700	‡	Steam Pump
Wagin Lake	208	00	6,298,600	‡	do
Tambellup	262	54	7,000,000	‡	do
Cranbrook	284	26	2,007,100	‡	do
Albany	350	17	120,000	‡	Gravitation
Northern Railway—					
Mullewa	367	19	3,386,400	8,440	Steam Pump
Yalgoo	440	65	1,981,100	10,250	do
Mount Magnet	517	48	2,882,900	11,168	do
Day Dawn...	560	68	4,042,900	5,486	do
Stakewell	598	17	4,087,500	4,462	do
Nallan	576	05	4,713,100	4,784	do

* Natural Pool. † Not vested in Commissioner of Railways. ‡ These Reservoirs formed part of the property purchased from the W.A. Land Company in 1896 for a lump sum. Their original cost is therefore not known.

NOTE.—The Reservoir at Kanowna, formerly included in this statement, is not now drawn upon by the Railway Department. It was transferred to the Goldfields Water Supply Administration in June, 1904.

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In addition to the reservoirs shown above, the construction of additional means of conservation has become a question of urgency, particularly so in respect of the water supply between Geraldton and Cue, and in the neighbourhood of Menzies and the extension northwards. A sextuple multiple effect condensing plant for sea water was laid down at Geraldton during the earlier part of 1904, there being no suitable catchment area near that place, and the water obtainable there by means of wells being destructive to locomotive boilers. This plant is giving satisfactory results.

Results of Working.

The principal results of working since 1st July, 1895, are contained in the table printed below:—

Year ending 30th June.	Average Length of Line.	Number of Passengers.	Goods and Live Stock.	Train Mileage.	Earnings.			Working Expenses.	Net Earnings
					Coaching Traffic.	Goods Traffic.	Total.		
	Miles.		Tons.		£	£	£	£	£
1895 ...	550	1,022,248	255,839	997,540	122,051	173,940	296,000	182,045	113,955
1896 ...	580	1,679,816	435,855	1,541,750	188,765	340,851	529,616	263,705	265,911
1897 ...	830	3,607,486	858,748	2,537,192	420,750	494,733	915,483	577,655	337,828
1898 ...	974	5,669,444	1,203,911	3,613,874	458,402	561,275	1,019,677	786,318	233,359
1899 ...	1,270	5,872,200	1,132,246	3,257,871	364,687	639,933	1,004,620	712,329	292,291
1900 ...	1,355	6,225,068	1,384,040	4,216,161	402,500	857,012	1,259,512	861,470	398,042
1901 ...	1,355	6,823,453	1,719,720	4,126,202	407,319	946,385	1,353,704	1,044,920	308,784
1902 ...	1,356	8,158,299	2,040,092	4,507,919	459,461	1,061,968	1,521,429	1,256,370	265,059
1903 ...	1,434	9,106,398	1,968,331	4,611,315	472,052	1,081,433	1,553,485	1,247,873	305,612
1904 ...	1,535	10,225,976	2,281,764	4,594,234	510,086	1,077,998	1,588,084	1,179,624	408,460

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These show, in gross, the sixfold increase in receipts and expenditure which has taken place during the last decade. The tonnage figure shows the same remarkable expansion, and the number of passenger journeys had exceeded it. In common with the majority of Australasian railways, statistics as to the ton mileage and passenger mileage are not available, and, consequently, it is not possible to comment upon these. With regard to the tonnages, however, having in mind the increase of the mileage open from 203 miles on 1st July, 1893, to 1,516 miles on 1st July, 1903, it is not impossible to conceive that the ton mileage, if available, would disclose an increase probably unique in the history of the railways of the world. A very large proportion of the traffic is carried for the through run of 385 miles from Fremantle to Kalgoorlie, and the absence of any substantial profitable backloading has a decidedly prejudicial effect on the percentage of working expenses to revenue. The increase in passenger journeys is due in large proportion, probably, to the extension of suburban settlement in the neighbourhood of the metropolis of the State, but there is not the slightest doubt that the average distance per journey would, if the figures were known, be found exceedingly high.

It is, however, by figures of a more condensed nature that the results accomplished can be most readily ascertained, and therefore the table hereunder is published, the period being similar to that previously shown:—

Year ending 30th June.	Earnings per Train Mile.	Working Expenses per Train Mile.	Net Receipt per Train Mile.	% Working Expenses to Gross Earnings.
	s. d.	s. d.	s. d.	%
1895	5 11·21	3 7·79	2 3·42	61·50
1896	6 10·44	3 5·05	3 5·39	49·79
1897	7 2·59	4 6·64	2 7·95	63·09
1898	5 7·72	4 4·22	1 3·50	77·11
1899	6 2·01	4 4·48	1 9·53	70·91
1900	5 11·70	4 1·04	1 10·68	68·40
1901	6 6·74	5 0·78	1 5·96	77·19
1902	6 9·00	5 6·89	1 2·11	82·58
1903	6 8·85	5 4·95	1 3·90	80·33
1904	6 10·96	5 1·62	1 9·34	74·28

The most striking feature of these figures is to be found, perhaps, in the high percentage relation of working expenditure to earnings. It has already been explained that the policy of the Government has been to use the railway system of the State for the development of the State's resources, to the greatest extent consistent with the direct payment by the customers of the Department of the cost of working and interest charges. The tariffs have been modelled and re-modelled from time to time with that object in view, but notwithstanding this, the Department has, after payment of all working expenses and interest charges, been able to hand over to the

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general revenue a profit varying in amount with the circumstances of the year, and as stated in the table hereunder:—

Year ending 30th June.	Profit on Working.	Total Interest Charges.	Net Profit.
	£	£	£
1895	113,955	85,577	28,378
1896	265,911	94,533	171,378
1897	337,828	138,692	199,136
1898	233,359	178,381	54,978
1899	292,291	221,429	70,862
1900	398,042	235,976	162,066
1901	308,784	243,477	65,307
1902	265,059	252,891	12,168
1903	305,612	274,725	30,887
1904	408,460	296,676	111,784

The figures in the column "Total Interest Charges," include not only the actual rates of interest payable on moneys expended from the various loans raised by the State (£8,473,626), but also provide for a charge of four per cent. per annum on moneys (£482,303), which have been expended from consolidated revenue on railway capital account, particulars of which are stated in a return previously included in this article. (*Vide* page 760.)

Results in relation to Population.

The enterprise of the State and the prosperity of its citizens are exemplified by means of its railway statistics perhaps better than in any other manner. As regards construction and capital expenditure, the figures taken at 30th June, in each year, have been as under:—

Year.	Population at 30th June.	Mileage.		Capital.	
		Miles open.	Population per mile.	Total Debit.	Per head of population.
				£	£
1895	89,477	550	163	2,092,372	23
1896	122,308	580	211	2,316,824	19
1897	157,633	830	190	3,734,477	24
1898	170,699	974	175	5,047,261	30
1899	168,128	1,270	132	6,427,370	38
1900	177,784	1,355	131	6,856,363	39
1901	189,226	1,355	140	7,098,239	38
1902	208,325	1,359	153	7,410,426	36
1903	224,311	1,516	148	8,141,782	36
1904	238,003	1,541	154	8,955,929	38

It will be seen that the development of the State has decreased the ratio between mileage open and population very materially, and at the same time more than doubled the responsibility per head as regards the capital figure.

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Although the debt per head on account of railway construction has risen rapidly, the cost per mile has been kept so comparatively low in Western Australia that the *per capita* responsibility under the similar headings of some of the other States is appreciably higher, while the use made of the railways in this State and the revenue per head of population is probably larger than would be found in any other country throughout the world. Based on the mean population throughout the State during the years respectively referred to, the figures as to the railway traffic per head are contained in the following statement :—

Year ending 30th June.	Mean population for Year shown.	Revenue.		Expenditure.	
		Gross Earnings.	Per head of population.	Working expenses.	Per head of population.
		£	£	£	£
1895	82,388	296,000	3·59	182,045	2·21
1896	104,602	529,616	5·06	263,705	2·52
1897	140,592	915,483	6·51	577,655	4·11
1898	164,039	1,019,677	6·22	786,318	4·79
1899	168,959	1,004,620	5·95	712,329	4·22
1900	172,281	1,259,512	7·31	861,470	5·00
1901	181,779	1,353,704	7·45	1,044,920	5·75
1902	197,341	1,521,429	7·71	1,256,370	6·37
1903	216,197	1,553,485	7·19	1,247,873	5·78
1904	228,591	1,588,084	6·95	1,179,624	5·16

Year ending 30th June.	Passengers.		Goods.	
	No. of Passenger journeys.	Per head of population.	Tonnage of Goods and Livestock.*	Per head of population.
	No.	No.	tons.	tons.
1895	1,022,248	12·41	255,839	3·11
1896	1,679,816	16·06	435,855	4·17
1897	3,607,486	25·66	858,748	6·11
1898	5,669,444	34·56	1,203,911	7·34
1899	5,872,200	34·76	1,132,246	6·70
1900	6,225,068	36·13	1,384,040	8·03
1901	6,823,453	37·54	1,719,720	9·46
1902	8,158,299	41·34	2,040,092	10·34
1903	9,106,396	42·12	1,968,331	9·10
1904	10,225,976	44·73	2,281,764	9·98

* These figures include the whole traffic hauled (*i.e.*, material for maintenance, locomotive fuel, etc.), whether productive of revenue or not.

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A traffic equivalent to a payment of practically £7 for each man, woman, and child living in the country must surely be regarded as phenomenal, and as an index of the great prosperity of the country wherein it occurs. It has, however, been reached by a steady and consistent growth, and may perhaps be regarded, in a measure, as the result of the geographical conditions of the State, and the location of the principal industry—gold-mining—at such a long distance from the coast and present centres of agricultural production. Although the figures in question cannot be expected to remain at their present abnormal proportion, their reduction can only, so far as the indications of the present and the experience of the past may be relied upon, be effected by a considerable increase in the population of the agricultural districts, whose business and habits do not lead proportionately to so heavy a railway traffic as do those of a population engaged almost exclusively in mining pursuits and their attendant requirements.

Classification of Traffic, Revenue, and Expenditure.

The information afforded hitherto has dealt principally with the main features of the railway system, and has avoided detailed results as far as practicable. It is not expedient, however, to omit all reference thereto, and the returns hereunder will, it is hoped, give as much information in that respect as can be found place for in an article of this nature.

Taking the result of the five latest financial years, the classification of receipts has been as follows:—

Receipts.	1899-1900.	1900-1901.	1901-1902.	1902-1903.	1903-1904.
	£	£	£	£	£
Passengers	342,468	341,479	381,295	380,722	398,067
Parcels, Horses, Carriages, etc.	38,347	41,486	48,798	56,510	64,398
*Cloak Room	...	...	3,218	2,774	2,691
*Mails	...	...	8,408	9,671	19,340
Goods and Minerals ...	769,058	837,948	939,418	953,431	996,175
Live-stock	28,380	32,631	31,266	30,446	30,559
Wharfage and Jetty Dues	49,058	59,253	66,416	62,663	40,215
*Rents	...	...	12,421	15,167	18,851
Miscellaneous	32,201	40,907	29,189	42,101	17,798
Total	1,259,512	1,353,704	1,521,429	1,553,485	1,588,064

* During 1899-1900 and 1900-1901 receipts from these sources were included with Miscellaneous. Had a similar course been followed in 1901-2 that item would have totalled £54,236 16s. 7d.

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The figures as to wharfage and jetty dues are interesting as conveying an approximate idea of the increases in the sea-borne commerce of the State, the rate charged and general conditions having remained the same throughout the period in question. Incidentally, it may be stated that from the 1st of January, 1903, the operation and control of the Fremantle wharves and jetties, of which the Commissioner of Railways was formerly the custodian on behalf of the Government, have been vested in a Board of Commissioners, known as the Fremantle Harbour Trust, who, from the date named, have collected all revenue derived from the shipping facilities of the harbour. The decrease in revenue earned by the Railway Department under this head is due to this cause.

The above statement dealing with the pecuniary classification, however, needs supplementing by some figures as to the manner in which it is derived, and for that reason the following broad divisions of the traffic are quoted :—

Divisions.	1899-1900.	1900-1901.	1901-1902.	1902-1903.	1903-1904.
Tonnage of General Goods	1,364,429	1,697,854	1,866,794	1,773,637	2,032,740
Tonnage of Live-stock...	19,611	21,865	21,352	21,382	24,530
Number of First-class Passengers	1,164,872	1,402,493	1,793,177	1,961,664	2,206,214
Number of Second-class Passengers	5,060,196	5,420,960	6,365,122	7,144,732	8,019,762
Total Number of Passengers	6,225,068	6,823,453	8,158,299	9,106,396	10,225,976

The tonnages of goods for 1899-1900 and 1900-1901 include the whole work of that class performed by the Department, goods carried without charge for the use of the railway (such as locomotives fuel, maintenance material, etc.) not having been separated therefrom until 1901-1902, when approximately 154,946 tons of such traffic were included in the total figure. For all practical purposes, a similar proportion may be taken as having reference to the similar total figures of the preceding years. Details

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of the gross tonnages for the four years ended 30th June, 1903, are as follows:—

Description of Goods.	1899-1900.		1900-1901.		1901-1902.		1902-1903.	
	Weight.	Per cent. of Total.	Weight.	Per cent. of Total.	Weight.	Per cent. of Total.	Weight.	Per cent. of Total.
	tons.		tons.		tons.		tons.	
Coals, Coke, and Shale	149,309	10·94	184,636	10·88	184,373	9·13	194,731	10·00
Ores	67,331	4·94	59,809	3·52	59,969	2·97	73,411	3·77
*Other Minerals...	237,977	17·44	280,062	16·50	391,833	19·41	375,061	19·27
Wool	1,947	0·14	2,170	0·13	2,036	0·10	2,321	0·12
Hay, Straw, Chaff	53,125	3·90	54,786	3·22	60,969	3·02	70,768	3·64
Grain (all kinds) and Flour	52,591	3·86	59,427	3·50	59,220	2·93	57,849	2·97
Potatoes	13,407	0·98	10,007	0·59	9,407	0·47	10,319	0·53
Firewood	273,715	20·06	413,552	24·36	604,034	29·92	525,058	26·97
Timber (locally-grown)	244,362	17·91	264,067	15·55	335,065	16·60	328,130	16·85
Timber (imported)	13,934	1·02	15,050	0·88	11,396	0·57	25,653	1·32
Machinery	51,104	3·74	50,322	2·97	31,239	1·55	14,983	0·77
Dairy Produce (including Milk, Butter, Cheese, and Eggs)	9,061	0·66	7,908	0·47	10,657	0·53	15,580	0·80
Fruit (other than dried or preserved)...	2,735	0·20	2,542	0·15	4,338	0·21	4,955	0·25
All other goods not classified above ...	193,831	14·21	293,516	17·28	254,204	12·59	248,130	12·74
	1,364,429	100·00	1,697,854	100·00	†2,018,740	100·00	‡1,946,949	100·00

* "Other Minerals" includes bricks, road metal, ballast, clay, ironstone, lime, limestone, rough stone, etc.

† This total includes the undermentioned tonnages carried free for Departmental use:—

Coal for Loco. Branch	138,091	tons
Rails, sleepers, etc., for Way and Works Branch ...	13,855	,,
Total	151,946	,,

‡ This total includes the undermentioned tonnages carried free for Departmental use:—

Coal for Loco. Branch	143,635	tons
Rails, sleepers, etc., for Way and Works Branch ...	29,677	,,
Total	173,312	,,

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On 1st July, 1903, the classification under which these details were kept was altered with a view of obtaining a clearer knowledge of the details of the traffic, and "On Service" traffic was separated from that which was revenue-producing. The following statements show the traffic for the year ended 30th June, 1904:—

(*a.*) *Revenue-producing traffic.*

	Description of Goods.	Weight.	Per cent. of Total.
		tons.	
1	Coal, Coke, and Shale	67,521	3·32
2	Ores, Slimes, and Tailings	183,740	9·04
3	*Other Minerals	344,406	16·94
4	Wool	2,255	0·11
5	Hay, Straw, and Chaff	80,960	3·98
6	Wheat	35,358	1·74
6A	Grain (all kinds excepting Wheat), Flour, Bran, Pollard, Sharps, and Wheatmeal ...	58,038	2·86
7	Potatoes	18,143	0·89
8	Firewood	555,055	27·31
9	Timber (locally grown)	410,883	20·21
10	Timber (imported)	38,320	1·89
11	Machinery (Mining)	8,752	0·43
11A	Machinery (other than Mining)	5,911	0·29
12	Dairy Produce, viz.:—Milk, Butter, Bacon, Eggs, and Cheese, etc.	8,972	0·44
13	Fruit (fresh) and garden produce	18,463	0·91
14	All other kinds not classified above	195,963	9·64
	Total tons	2,032,740	100·00

* "Other Minerals" includes bricks, road metal, ballast, clay, lime, limestone, etc.

(*b.*) *Departmental (non-revenue producing) traffic.*

Description of Goods.	Weight.	Per cent. of Total.
	tons.	%
Coal and Coke	141,591	63·07
Firewood	6,659	2·97
Rails and Sleepers	19,107	8·51
Timber	8,815	3·93
All other "On Service" traffic	48,322	21·52
Total	224,494	100·00

The most noticeable increases for 1903-1904 are in ores, slimes, and tailings (item 2), 183,740 tons, as compared with 73,411 tons in

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1902-1903; grain (items 6 and 6A), totalling 93,396 tons, as compared with 57,849 tons; potatoes (item 7), 18,143 tons, as compared with 10,319 tons; and locally-grown timber (item 9), plus 8,815 tons "On Service," totalling 419,698 tons, as compared with 328,130 tons. On the other hand there are considerable decreases in dairy produce (item 12), 8,972 tons, as compared with 15,580 tons, and "all other goods not classified above" (item 14), 195,963 tons, as compared with 248,130 tons.

It is of interest to note that by far the largest item is firewood and to observe the annual increases under that heading, which in 1901-1902 represented practically one-third of the gross tonnage. The gold-mining industry is, of course, the largest consumer of this commodity.

Turning to the reverse side of the ledger, we find the following figures relating to expenditure:—

Service.	1899-1900.	1900-1901.	1901-1902.	1902-1903.	1903-1904.
	£	£	£	£	£
* Loco., Carriage, and Wagon Charges ...	406,565	497,188	670,485	642,808	581,655
Permanent Way, Works and Buildings ...	160,264	193,573	215,320	231,970	236,089
Traffic and Jetty Expenses	252,750	296,045	306,409	312,364	306,998
Compensation (Goods and Coaching) ...	4,455	6,926	7,246	4,808	3,940
Electrical	18,805	21,838	25,303	27,031	22,487
Signalling and Interlocking	4,027	6,040	6,307	6,547	5,854
Generally	14,604	21,310	25,300	22,345	22,601
Totals	861,470	1,044,920	1,256,370	1,247,873	1,179,624

* These figures include charges for replacing and rebuilding locomotives and rolling stock, as referred to on page 778.

These represent the gross or bulk divisions of the total amount, and call for little comment with the exception of the high proportion of the expenditure under "locomotive, carriage, and wagon charges," which is dealt with in detail elsewhere in this article. The "compensation" item is admittedly high in comparison with the corresponding expense in other parts of the Commonwealth, and is due, generally speaking, to the conditions of a new country which still obtain to a large extent in Western Australia; not only is the staff, to a certain extent, inexperienced—or, at all events, of less average experience—than would be the case with railways of older establishment, but at the same time the comparatively abundant opportunities of employment in other industries deprive the word dismissal of a good deal of the disciplinary effect which it has in less prosperous States, and, therefore, carelessness cannot be so rigorously guarded against, as might otherwise be the case.

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The division per mile open in the respective years has been as shown hereunder:—

Service.	1899-1900.	1900-1901.	1901-1902.	1902-1903.	1903-1904.
	£ s.	£ s.	£ s.	£ s.	£ s.
*Loco., Carriage, and Wagon Charges ...	300 1	366 19	494 9	448 5	378 18
Permanent Way, Works and Buildings ...	118 5	142 17	158 16	161 15	153 16
Traffic and Jetty Expenses	186 11	218 10	225 19	217 17	200 0
Compensation	3 6	5 2	5 7	3 7	2 11
Electrical	13 18	16 2	18 13	18 17	14 13
Signalling and Interlocking	2 19	4 9	4 13	4 11	3 16
Generally	10 15	17 4	18 13	15 12	14 15
Totals... ...	635 15	771 3	926 10	870 4	768 9

* These figures include charges for replacing and rebuilding locomotives and rolling-stock, as referred to on page 778.

The cost per mile open has naturally expanded with the degree in which the use of that mile has increased, though for that matter, perhaps the cost per train mile, given hereunder, affords a better criterion:—

Service.	1899-1900.	1900-1901.	1901-1902.	1902-1903.	1903-1904.
	s. d.	s. d.	s. d.	s. d.	s. d.
*Loco., Carriage, and Wagon Charges ...	1 11·15	2 4·92	2 11·70	2 9·46	2 6·39
Permanent Way, Works and Buildings ...	0 9·12	0 11·26	0 11·46	1 0·07	1 0·33
Traffic and Jetty Expenses	1 2·39	1 5·22	1 4·31	1 4·26	1 4·04
Compensation	0 0·25	0 0·40	0 0·38	0 0·25	0 0·21
Electrical	0 1·07	0 1·27	0 1·35	0 1·41	0 1·17
Interlocking and Signalling	0 0·23	0 0·35	0 0·34	0 0·34	0 0·30
Generally	0 0·83	0 1·36	0 1·35	0 1·16	0 1·18
Totals	4 1·04	5 0·78	5 6·89	5 4·95	5 1·62

* These figures include charges for replacing and rebuilding locomotives and rolling-stock, as referred to on page 778.

The decrease in total cost is attributable, in part, to the larger train loads now hauled by the newer and heavier classes of engines, combined with the larger proportion of paying load to tare of wagons, which has been the outcome of the recent policy of the Department. On 1st July, 1900, the basis of computation of train mileage was modified to coincide with the practice agreed upon to be

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adopted throughout Australasia, and for that reason the figure for 1899-1900 is not of much service as a basis of comparison, though it is included to complete the period used throughout this paragraph.

Facilities for Travel.

The figures relating to passenger receipts show that the travelling propensities of the Western Australian public are very much in evidence; and every encouragement is offered by the Department to all classes of the community to still further stimulate them. During the whole summer, and on every occasion of general holiday-making, excursion fares at the lowest possible rates are brought into operation to enable the public to travel at the minimum expenditure between the various centres of population and the numerous holiday-making resorts. The children of the goldfields are particularly catered for in this respect; and the efforts of the Goldfields Fresh Air Leagues are backed up by the quotation of return fares of 10s. per child, in parties of ten, from the Murchison Goldfields to Geraldton, and 20s. per child from the Eastern Goldfields to the coastal watering-places—Albany, Busselton, or Bunbury—whilst one adult attendant per party of ten children is carried at twice the child's fare. It is felt that by these means the Department is directly furthering the efforts of private philanthropy towards the maintenance of the health and the building up of the constitutions of the younger members of the community.

Development of Industries.

Similarly, the Department is attempting to assist in the encouragement of land settlement, and the development of all industries connected therewith, by the quotation of specially low rates on the various classes of goods used by settlers for clearing, improving, and opening up their land. Machinery for mining purposes also occupies a very favourable position in the rate classification; and native coal and timber are carried at rates which represent very little excess over the total cost of the services therefor rendered. In point of fact, the whole basis of the Rate Book is, as previously mentioned (page 787), the development of the State's resources at charges representing direct payment by the customers of the cost of transit and interest on construction of the plant provided by the State.

Conclusion.

The information contained in the compass of an article such as this must necessarily be condensed and curtailed to deal only with leading features, space limit precluding reference to details. To anyone sufficiently interested, however, the Commissioner of Railways will be pleased to forward any further information on application.

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PRIVATE RAILWAY LINES.

All the private lines in the State are built, like those constructed by the Government, on the 3ft. 6in. gauge. The following table, for the year 1903, gives particulars, as far as obtainable, of all private railways in Western Australia.

Name.	Length of Line.	Gauge.	Capital expended up to 31st December 1903.	Revenue for year.	Working Expenses for year.	Passengers carried.	Goods carried.	Train Miles run.	Sidings.	Locomotives.	Passenger Carriages.	Goods Trucks (open and covered).	Brake Vans.	Telephone Lines on 31st Dec., 1903.‡
	Miles.	ft. in.	£	£	£	No.	Tons.	Miles.	No.	No.	No.	No.	No.	Miles.
Midland Railway	277	3 6	d 1,999,006	68,785	37,085	31,900	e 53,201	234,268	36	10	10	146	10	277
Jarrahdale Jarrah Forests and Rockingham Railways *	50	3 6	i 50,000	a	a	a	a	a	d f 24	3	1	150	Nil	33½
Karridale Railways *	35	3 6	58,118	a	686	Nil	a	a	13	5	2	232	Nil	32
Wonnerup Railway * g ...	24½	3 6	27,000	227	774	312	315	3,744	2	2	Nil	4	Nil	Nil
Torbay Junction-Denmark Railway * ...	28½	3 6	52,162	1,814	2,235	1,700	29,546	24,000	4	1	1	75	1	38½
Mornington Mills Railway *	21	3 6	42,500	Nil	2,788	3,120	135,885	40,560	5	2	1	35	Nil	6
Yarloop Railway *	36	3 6	45,000	Nil	2,658	Nil	2,250	60,000	30	4	Nil	1	Nil	19
Upper Darling Range Railway *	11½	3 6	12,000	1,095	1,340	1,000	32,836	8,200	6	3	1	Nil	1	3½
Waroona Railway *	16½	3 6	17,000	Nil	890	Nil	500	31,000	4	2	Nil	Nil	Nil	12
Ferguson River Railway *	21	3 6	25,000	919	2,150	3,552	87,500	18,000	6	1	1	40	1	13
Collie Mills Railway (Worsley) * ...	6	3 6	1,588	a	1,056	Nil	a	15,650	3	2	Nil	22	Nil	Nil
Quindalup Railway * †	14	3 6	4,000	Nil	Nil	Nil	Nil	Nil	4	Nil	Nil	Nil	Nil	Nil
Timber Corporation (Greenbushes) ...	5½	3 6	2,708	Nil	459	Nil	31,646	7,000	1	1	Nil	14	Nil	Nil
W. A. Goldfields Firewood Supply, Limited (Kurrawang) ...	45	3 6	46,000	a	a	Nil	206,000	a	a	4	Nil	25	1	40
Goodwood Wood Line (Kalgoorlie)	20	3 6	18,942	a	a	Nil	b 80,000	a	Nil	2	Nil	Nil	Nil	Nil
Kanowna Wood Line ...	15	3 6	14,000	Nil	3,000	Nil	Nil	9,000	1	1	Nil	15	Nil	Nil
Dyke and Ridgway's Siding (Kalgoorlie)	¾	3 6	1,124	a	a	Nil	c 8,700	a	Nil	Nil	Nil	Nil	Nil	Nil
Total	627¼	3 6	2,416,148	h 72,840	h 55,121	h 41,584	h 668,379	h 451,422	h 139	43	17	759	14	473½

a Particulars not available. b Firewood. c Bricks. d Figures for 1901; no later figures supplied. e Also 81,441 head of live stock. f Including 20 log sidings. g Only worked part of the year. h Incomplete totals. i Approximate figures. * Owned by "Millar's Karri and Jarrah Company (1902), Limited." † No longer used. ‡ There were no telegraph lines belonging to any of the private railways.

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Midland Railway.—The Midland Railway of Western Australia starts from the Midland Junction, 10 miles from Perth, on the Eastern Railway, and runs Northwards, *via* Gingin, to Walkaway, a distance of 277 miles, where it joins the Government line running to Geraldton. It was constructed under a concession on the land grant system, the company receiving 12,000 acres of land for every mile of railway. There are 277 miles of telephone in connection with this railway.

The *Jarrahdale, Karridale, Wonnerup, Torbay, Mornington, Yarloop, Upper Darling, Waroona. Ferguson River*, and *Worsley Railways* are all the property of "Millar's Karri and Jarrah Company (1902) Limited."

Jarrahdale Jarrah Forests and Railways, Ltd.—This line was constructed by the Jarrahdale Timber Company under a special timber concession agreement. It consists of a line from Rockingham to Jarrahdale, a distance of 23 miles from Rockingham, thence continuing from Jarrahdale inland in different directions to the various mills, making a distance of 50 miles. The telephone line in connection with this railway is 33 miles long.

Karridale Railways.—Under special timber concessions and other leases, the *M. C. Davies' Karri and Jarrah Company, Limited*, has constructed lines from Hamelin Harbour and Flinders Bay to the mills at Karridale, Boyanup, and Jarrahdene, with branches into the forest, of a total length of about 35 miles. The telephone lines are about 38 miles long. The company has erected substantial jetties, put down secure moorings, and surveyed and buoyed the harbours both at Hamelin and Flinders Bay. At the latter place a depth of water of 30ft. is provided for at lowest neap tides.

Wonnerup to Darling Range Railway.—The line from Wonnerup (six miles from the port of Busselton) to the Jarrah Wood and Sawmills Company's Timber Station is 24 miles long. It is proposed to ultimately extend the line to St. John's Brook, and thence to Lower Blackwood.

Torbay Junction-Denmark Railway.—Messrs. Millar's Karri and Jarrah Forests, Limited, have, under a special concession, constructed a line of railway of standard gauge, on the land grant system, from a point 10 miles from Albany on the Great Southern Railway to Torbay, a distance of 12 miles, and further continued the railway on to Denmark Mills, a distance of 28 miles from Torbay Junction; in addition the railway extends for several miles out into the bush, from whence the logs are brought to the mills

Mornington Mills Railway.—The Company also have 21 miles of railway at Mornington, with 35 trucks, 2 locomotives, and 6 miles of private telephone line.

Yarloop Railway.—At Yarloop, Millar's Karri and Jarrah Forests, Limited, have constructed 47 miles of railway line, fully equipped with the necessary rolling stock. There are four sawmills on the concession, and 19 miles of private telephone

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lines. This line leaves the South-Western Railway at Yarloop, a place 78 miles South from Perth, and then runs Easterly over the Darling Range.

Upper Darling Range Railway.—This line, which until July, 1903, was the property of the Canning Jarrah Timber Company, has, with the exception of about 4½ miles at its Eastern end, been purchased by the Government. Starting just outside the Midland Junction station on the Eastern Railway, it runs to the Canning Timber Station, a distance of about 20 miles. On the first section occurs the Zig-Zag; and near the top of the range, at a height of about 926 feet, is situated the station and village of Kalamunda, where the bulk of the strawberries sold in the local market are produced. Along the line are several brick-making establishments; also a large stone quarry for road metal; whilst several firewood companies also have their depôts. In the immediate vicinity of the line, a comparatively large area of land is planted in orchards, etc. From Pickering Brook, where the Government line ends, to the Canning Mills, the line remains the property of the Canning Jarrah Timber Company, who have also several branch lines running into the forest for log-hauling purposes.

Waroona Railway.—The present length of this line is about nine miles. Two locomotives are owned, and there is a telephone line along the whole length of the railway. The upper mills are connected by rail with the Yarloop station, and all timber reaches the Government line by that means.

Ferguson River Railway.—This line leaves the Government railways at Dardanup railway station, 128 miles from Fremantle, on the Bunbury-Bridgetown line. The line is worked by the Canning Jarrah Timber Company, Limited, and runs up the Ferguson River Valley to the Wellington Timber Station, a distance of 15 miles. At this station the Canning Jarrah Timber Company have a large and completely fitted up hardwood mill. The whole of the refuse from this mill is dealt with by automatic machinery, the firewood being removed by patent elevators, and the sawdust blown into the fires by means of immense fans.

Worsley Railway.—Millar's Karri Jarrah Company, Limited, have built eight miles of railway, connecting the Collie mills with the Government line at Worsley station, which is 113 miles from Perth, on the Brunswick-Collie line. The company have brought these mills well up to date by erecting improved machinery and by using the latest labour-saving devices.

The Timber Corporation, Ltd.—The property owned by this Corporation consists of a forest of Jarrah timber situated near Greenbushes, and containing an area of over 80 square miles. It has a large frontage to the Government main railway line. The Corporation have two sawmills, fitted with the most improved machinery, and including the latest appliances for dressing timber. The mills are connected with the Government Railway by a line two miles long belonging to the company; they also own seven or eight

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miles of railway extending from the mills into the bush, and have two locomotives with full complement of rolling-stock for working their traffic. There is a recreation hall at the mill for the use of employees, and a Government school is held in the building. The jarrah export trade of the company is carried on mainly from the port of Bunbury, which is within easy access. The head office of the corporation is at Hamilton House, London, and the general manager's office is at the sawmills, Greenbushes.

The Westralia Timber and Firewood Co. have, under a permit (granted under Section 8 of the Lands Act Amendment Act, 1902), constructed 24 miles of tramway, standard gauge, running in a N.E. direction from Kanowna railway station. About 350 men and 100 horses and drays are employed, and two locomotives are used in bringing the firewood to Kanowna railway station.

Dyke and Ridgway Siding.—This line belongs to the Coolgardie pressed Brickworks Company. It leaves the Government line near Coolgardie Railway Station, connects with the brickworks belonging to the company, and is used for the transport of bricks only. The total length is about ¾-mile, and the line was constructed at a cost of about £1,000.

GOVERNMENT TRAMWAYS.

The Government possesses 8½ miles of horse tramway between the jetty at Cossack and the township of Roebourne. It is at present worked by the Railway Department, but the Commissioner of Railways, in his last three reports, has expressed the opinion that it would be to the advantage of his department if it ceased to have anything whatever to do with this tramway, owing to the impossibility of his exercising any but postal supervision over it.

The receipts, for the year ended 30th June, 1904, amounted to £2,219, cost of working to £1,869, and the interest charges to £981. The net result was therefore a loss of £631.

The undertaking includes the working of the Government jetty at Cossack, and from this portion of the business £777 of the revenue was derived. First-class passengers (2,541) and second-class (1,356) contributed £384; goods (principally wool) and live stock, £880; the balance being derived from parcels, etc., £77; mails, £30; rents, £10; and miscellaneous receipts, £61.

The Government also owns short tramways at the following places:—Wyndham, 18 chains; Derby, 2¼ miles; Broome, 2 miles; Port Hedland, 24 chains; Balla Balla, 18 chains; Onslow, 4 miles 16 chains; Maud's Landing, 33 chains; Carnarvon, 3 miles 2 chains; Dongara, 32 chains; Hopetoun, 18 chains; Esperance, 1 mile 8 chains; and Israelite Bay, 11 chains. The tramways are worked in connection with the jetties serving these ports, providing the necessary communication between such jetties and the townships and goods sheds or warehouses therein. They are leased at annual

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rentals, under the general supervision of the Chief Harbour Master, maintenance and improvements, however, being effected as required by the Public Works Department. With the exception of Derby, Dongara, and Esperance, at which places the gauge is 3 feet 6 inches, the lines are narrow gauge (2 feet).

PRIVATE TRAMWAYS.

There are now three West Australian towns that enjoy the benefit of electric tramways—namely, Perth, Kalgoorlie, and Boulder. At Fremantle a line is about to be constructed under municipal control.

The *Perth Electric Tramway Company* made its line available for public use in 1899. It has since extended its connections to Subiaco, Leederville, Mount Lawley, and Point Lewis, and has applied for provisional orders for constructing lines to Victoria Park and North Perth. The Town Properties Company's tramline, known as the Osborne Park Line, 2⅝ miles, is also operated by the Perth Electric Tramway Company. On the 31st December, 1903, there were 18⅓ miles of line open (not including Osborne Park), the cost of construction and equipment to that date being £414,978. The gross receipts for the year were £62,523, while the working expenses amounted to £36,256. The miles run during the year numbered 863,245. The number of passengers carried was 5,163,672. During the year the rolling-stock was increased by the addition of nine large double bogie cars, fitted with air brakes, which makes the number of cars in possession of the company 39.

The *Kalgoorlie Electric Tramways, Limited*, opened its line in 1902. On the 30th June, 1903, the number of miles worked was 15½, whilst the cost of construction and equipment was £150,380. In January, 1904, an Act of Parliament was passed authorising the construction of lines in Boulder City and suburbs, and on the 10th November, 1904, the last section of the Boulder system was completed; the total mileage for the whole system (Kalgoorlie and Boulder) being then 20½ miles, and the total cost of construction and equipment £180,000.

PROPOSED TRANSCONTINENTAL RAILWAY FROM KALGOORLIE, IN WESTERN AUTSRALIA, TO PORT AUGUSTA, IN SOUTH AUSTRALIA.

(*Summarised from the Report of the State Engineers-in-Chief.*)

With regard to the proposed connection by railway of Western Australia with the Eastern States, the information available has been condensed, and the principal points summarised, in the final report (27th August, 1903) of the Engineers-in-Chief of the five Australian States of New South Wales, Victoria, Queensland, South Australia, and Western Australia, who met together to consider and discuss the arguments both for and against the scheme.

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From the report above mentioned, it appears that the route preferred by the South Australian Government is the one *via* Tarcoola. It is recommended that the standard gauge of 4ft. 8½in. be adopted; and it is understood that there is no objection on the part of the Western Australian Government to the introduction of the proposed gauge; in fact, the laying of a new line of this width on the Fremantle-Kalgoorlie railway track has already been arranged for, so soon as the transcontinental line shall be agreed to.

The probable expenditure in connection with the construction of the transcontinental line is estimated at £4,559,000. This estimate is based on the conditions that the length of line is about 1,100 miles, and that it must be so constructed as to permit of high rates of speed; consequently allowance must be made for a well ballasted road, with rails 70lbs. to the yard, and for a ruling grade not more severe than 1 in 80. A branch line to Eucla will also have to be made for the purposes of construction, and the jetty at that port strengthened and lengthened to permit of the landing of locomotives and of necessarily large quantities of rails and sleepers.

The probable revenue which may be depended upon immediately after construction is estimated at £205,860 per annum. If the past progress in Western Australia is maintained, so that the present population becomes doubled in ten years after completion, the revenue may also be taken as double, viz., £411,720. The compilers of the report state that they were particularly careful not to over-estimate the revenue. The certain competition of steamers in bidding for the conveyance of passengers and freight has to be allowed for, but the continuance of Western Australian prosperity is the controlling factor. There at present exists a very large movement of population between the Eastern States and that of the West, which appears to be still increasing, and likely to continue so. That this movement will be encouraged by the additional facilities of railway communication cannot be doubted; and the bringing of the Eastern goldfields of Western Australia into nearer connection with Adelaide, and consequently the whole of the Eastern States, must result in an ever-increasing passenger traffic; thus the revenue may prove to be higher than estimated, and the deficiency may tend to diminish from year to year more rapidly than has been assumed. It will be for the Commonwealth Government to decide whether the immediate pecuniary loss is so serious as to outweigh the ultimate beneficial effects.

The probable annual expenditure in working and maintaining the line immediately after construction is estimated at £114,400, which, added to interest on the cost of construction, at 3½ per cent. —£159,566—gives £273,966 for the total expenditure. After 10 years, under the conditions stated, the working expenses may be taken as £210,000, and, in view of the necessary expenditure in improving works in the meantime, the interest on the enlarged capital will be £183,501, making a total of £393,501.

The time to be allowed for the completion of the line, in the opinion of the authorities quoted, is four years.

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In conclusion, the report summarises the benefits likely to accrue from the realisation of the scheme in the following words:—

"The chief effect of the construction of the Transcontinental Railway would be to draw the Eastern and Western States into closer relationship politically, commercially, and socially.

"The feeling of the community of interests engendered by the establishment of the Commonwealth would be more steadily and satisfactorily maintained, and in case of foreign attack, when communication by sea, if not cut off altogether, might be precarious, a safe and rapid means of conveying men, arms, and ammunition from one side of the continent to the other would be invaluable.

"There would be a saving of time of two days in the delivery of mails between East and West. The railway would enable despatches and communications to be expedited, which is a matter of immense importance both from a business and social point of view. It would greatly induce travel, and many people who shun the discomforts of the sea trip, or cannot afford the extra time involved, would readily take advantage of the railway.

"The saving of time would be more than doubled when return mails between Europe and the Eastern States are considered.

"The saving of time between Fremantle or Perth and the Eastern States is small compared with that between Kalgoorlie and the Eastern States. The journey from Kalgoorlie to Adelaide now requires five days, whereas it would then be done in 36 hours by the railway.

"It may be expected that the food supply of the goldfields would be better and cheaper, as the result of the construction of the railway. The cost of living is now very high in that district, and, in consequence, miners and others do not reap that benefit from their high wages which might be expected. On the other hand, were the cost of living reduced, wages might come down without any hardship to the men, and enterprise would be stimulated.

"The present telegraph line runs for the greater part of its length through uninhabitated country, and its maintenance is carried on under great difficulties. Were the railway constructed, a better, more accessible, and more easily maintained line could be made available, which could be duplicated as required, and payment for the use of the submarine cable, in consequence of interruption or inadequacy of the land line, would be obviated.

"New tracts of country would be opened up for pastoral settlement both in South Australian and Western Australian territory, the chief difficulty at present lying not so much in the want of fertility of the country and the absence of water as in its inaccessibility.

"The same may be said as regards mineral development. Recent discoveries show that the country for 175 miles East of

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Kalgoorlie, which is auriferous, may turn out to be highly productive, and a source of revenue to the railway. Tarcoola, and other mining centres in South Australia, if rendered more accessible, may come to enjoy prosperity after they have been more thoroughly and systematically prospected. The reports of the Government Geologist are not unfavourable.

"We are of opinion that South Australia will gain by the construction of the railway. Not only will the railway revenue receive an impetus, and, as before indicated, opportunity for pastoral and mining development be afforded, but the State generally must be benefited by the increase of passengers and other traffic which will come with the railway. We think that if there is any fear of Adelaide ceasing to be a port of call, this could be met by inserting a stipulation in the next mail agreement that the steamers should call there."

About £9,000 has been expended by the Western Australian Government in boring for water along the proposed route of the railway, but with only partial success, and no further work in this direction is intended at present.

The question of granting £20,000 for the survey of the railway between Kalgoorlie and Port Augusta has been mooted in the Commonwealth Parliament, but no satisfactory decision has yet been come to in the matter.

6.—POSTAL SERVICE.

Universal Postal Union.

Western Australia, as forming a portion of Australasia, entered the Universal Postal Union on the 1st of October, 1891. The various colonies comprising Australasia having endeavoured, unsuccessfully, to induce the Union to allow each colony to be separately represented, an arrangement was finally come to by which Australasia, comprising the six States of the present Commonwealth and the colonies of New Zealand and Fiji, was to be treated as one country at the International Conference, each colony being, however, allowed to regulate its own tariff, provided it was in accord with the provisions of the Union so far as International Postage was concerned.

The result was that the postage charged on letters received from, and despatched to, all Foreign countries was reduced from

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6d. (and in some cases 8d.) to 2½d. (the Union charge) per ½oz.; whilst a corresponding reduction was also made on newspapers and packets.

On 1st January, 1901, Western Australia became one of the six States of the Commonwealth of Australia, under which, on the 1st March succeeding, the six separate Post and Telegraph Departments were amalgamated into one Federal Office.

English, Foreign, and Interstate Mails.

Fremantle has, since 1900, been made the first and last port of call for the large ocean-going mail steamers, in lieu of Albany, the original port of call; the first of these steamers arriving from the Eastern States on the 13th August, and the first from London on the 12th September, since when the English and Foreign mails have arrived and departed weekly at and from the port of Fremantle.

The P. & O. and Orient Companies' steamers call alternately, conveying the weekly homeward and outward mails; and those of the Messageries Maritimes and the N.D.L. Companies, which are under contract respectively with the French and German Governments to convey mails monthly between Marseilles and New Caledonia and between Hamburg and Sydney, also call at Fremantle with a small mail from the Continent of Europe; and letters are therefore in addition forwarded by these steamers, provided they are so superscribed.

The interstate mails are conveyed regularly weekly by the P. & O. and Orient steamers, and also by vessels of the Adelaide S.S., A.U.S.N., Howard Smith, McIlwraith McEacharn, Huddart Parker, and Melbourne Steamship Companies, thus giving at least three regular weekly mails from and to the Eastern States.

After leaving Fremantle, all the outward mail steamers call at Adelaide, where the mails are landed, and thence conveyed to their ultimate destination by rail.

The contracts with the P. & O. and Orient Companies to convey mails between Europe and Australia expired on the 31st January, and while negotiations for a new contract were pending, the mails were carried at poundage rates.

On the 1st February, 1905, the P. & O. S. N. Company commenced its eighth Australian contract with the British Postmaster General on behalf of the Imperial Post Office only, and in connection with the India and China mail services, one payment being arranged for the whole service, and the Commonwealth Government not, as hitherto, being a party to the contract.

The new contract provides for a mail service between London and Melbourne and *vice versâ*, the time for the mail transit being limited to 30½ days; that is a day less than that allowed during the previous contract.

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In April the Orient Steam Navigation Company concluded a new contract with the Commonwealth Government for a fortnightly mail service between England and Australia. The subsidy agreed upon is £120,000 per annum, and the contract will run until January, 1908. The contract time for the transit is 29 days between Adelaide and Naples. The contract stipulates that only white labour is to be employed, and that the steamers employed in the service are to be fitted for the conveyance of refrigerated cargo. The Orient Company have stipulated for liberty to cancel the contract at six months' notice if any new legislation is imposed which would be detrimental to the company's interest, unless the Federal Government indemnify them by an increase in subsidy to the extent of the damage.

Western Australia had, up to the 31st January, 1905, paid as her share of the subsidies which the P. and O. and Orient Companies received under the mail contract:—

	£
1888	1,529*
1889	999
1890	895
1891	1,063
1892	1,212
1893	1,317
1894	1,435
1895	1,755
1896	2,131
1897	3,299
1898	3,242
1899	3,262
1900	3,327
1901	3,339
1902	3,414
1903	3,969
1904	4,150
1905 (January only)	347
Total	£40,685

* This amount includes payment for two months under the old contract.

European Mail.—The outward mails are due at Fremantle on Thursday in each week; they, however, frequently arrive on Wednesday, and even as early as Tuesday. The time of their probable arrival at Fremantle is cabled from Colombo. The steamers generally stay in port about six hours. The homeward mails, that is, the mails to England, Europe, etc., close at Perth, as a rule, each Monday; whilst the outward mails, mainly those to the Eastern States, vary according to the day on which the steamer is expected to arrive from Colombo.

The average time taken in the conveyance of the mails from London to Fremantle is 27 days, and from Fremantle to London 27½ days.

Travelling Post Office.—The mails are carried between Perth and the Eastern Goldfields in a travelling Post Office Van, where all sorting is carried out.

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POSTAL RETURNS.

There were at the end of 1902, 197 Post and Telegraph Offices in Western Australia, or one to every 1,092 inhabitants. The cost of the conveyance of inland mails during 1902 was £37,432 exclusive of the Coastal steam service, which cost £10,385. At the end of the year 1902 the total staff of the Postal and Telegraph Department numbered 1,330 persons, the number being 1,385 at the end of 1903.

On the 31st December, 1903, the number of Post and Telegraph Offices had increased to 218, or one to every 1,041 inhabitants. The conveyance of inland mails had increased to £38,605, and the Coastal Steam service to £11,991.

Return of Post and Telegraph Revenue and Expenditure for Years 1899 *to* 1903.

	1899.	1900.	1901.	1902.	1903.
	£	£	£	£	£
Post and Telegraph Revenue ...	203,962	206,475	218,818	232,591	221,323
Post and Telegraph Expenditure	230,700	248,877	251,289	259,499	277,021

Postal Returns, 1894 *to* 1903.

Year.	No. of Post Offices.	* Despatched and Received.			
		Letters and Post Cards.	Newspapers.	Packets and Parcels.	Total Postal Matter.
1894	111	11,564,697	9,375,589	3,143,008	24,083,294
1895	121	18,141,567	17,996,387	4,079,368	40,217,322
1896	150	27,900,251	17,059,556	4,467,814	49,427,621
1897	178	12,933,000	6,744,536	3,984,866	23,622,402
1898	171	13,429,700	7,390,294	3,262,262	24,082,256
1899	165	12,973,553	6,287,018	3,015,995	22,276,566
1900	178	13,621,695	6,992,278	3,449,779	24,063,752
1901	187	15,427,014	7,975,208	4,421,672	27,823,894
1902	197	16,138,288	9,916,544	5,164,034	31,218,866
1903	218	15,786,777	9,171,203	4,483,613	29,441,593
Increase for 1903	21	—351,511	—745,341	—680,421	—1,777,273

* The figures for 1897 and subsequent years represent the actual numbers posted, each letter, packet, post-card, or newspaper counted only once; whereas in the returns for 1894 to 1896 inclusive, each was counted once for every office through which it passed.

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Statement showing the number of Letters, Newspapers, Books, Post-cards, and Packets that passed through the Post Office of the State during the years 1901 to 1903:—

	1901.	1902.	1903.
Letters.			
Inland (posted)	9,726,031	10,231,508	9,832,929
Received from places beyond the State	2,941,130	2,952,099	3,050,723
Posted for places beyond the State ...	2,023,864	2,012,724	2,276,543
Total	14,691,025	15,196,331	15,160,195
Post-Cards.			
Posted and received	430,292	* 588,435	† 394,415
Newspapers.			
Inland (posted)	2,891,166	4,621,341	3,854,469
Received from places beyond the State	4,085,102	4,249,740	4,270,817
Posted for places beyond the State ...	998,940	1,045,463	1,045,917
Total	7,975,208	9,916,544	9,171,203
Packets.			
Inland (posted)	3,007,408	3,684,376	2,968,548
Received from places beyond the State	831,803	872,209	873,239
Posted for places beyond the State ...	547,814	571,081	572,257
Total	4,387,025	5,127,666	4,414,044
Parcels.			
Inland (posted)	*Nil*	*Nil*	25,448
Received from places beyond the State	26,866	27,773	32,749
Posted for places beyond the State ...	7,781	8,595	11,372
Total	34,647	36,368	69,569
Registered Letters.			
Posted and received	305,697	353,522	232,167

* The number of Post-Cards posted for places beyond the State is included under other heads, principally "Letters." † Post-Cards posted for or received from places beyond the State are included under other heads, principally "Letters."

Postal Notes.

Postal Notes have been in use in this State since June, 1887, and are now negotiable within the boundaries of the Commonwealth. They are payable to bearer, at all Post Offices, if presented within the usual office hours, provided that, if made payable to a specified person, they bear such person's lawful signature.

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The following return gives the number and value of Postal Notes issued from the year 1894 to 1903 inclusive:—

Postal Notes Issued, 1894 to 1903.

Particulars.		1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.
Value of Note.											
1s. ...	No.	783	892	1,212	2,237	3,737	6,250	7,872	10,109	8,119	8,317
1s. 6d. ...	,,	611	812	977	1,929	2,864	5,134	6,544	8,061	5,394	3,625
2s. ...	,,	...	...	...	...	...	...	...	...	4,012	7,966
2s. 6d. ...	,,	522	580	833	1,825	2,466	6,081	6,452	7,032	7,447	8,772
3s. ...	,,	...	...	...	...	...	...	...	...	4,474	10,333
3s. 6d. ...	,,	...	...	...	...	...	...	...	...	2,575	6,379
4s. ...	,,	...	...	...	...	...	...	...	...	4,224	9,723
4s. 6d. ...	,,	...	...	...	...	...	...	...	...	2,203	5,537
5s. ...	,,	929	1,213	1,441	3,167	5,661	12,340	13,952	15,941	18,014	22,385
7s. 6d. ...	,,	333	376	432	1,098	1,713	4,728	4,567	5,671	6,240	7,428
10s. ...	,,	1,157	1,347	2,139	4,053	7,056	12,764	19,793	25,802	26,533	31,608
10s. 6d. ...	,,	...	...	...	...	...	...	...	...	2,084	4,838
15s. ...	,,	...	...	...	...	...	...	...	...	6,105	11,905
20s. ...	,,	...	...	...	...	...	...	...	...	26,453	47,447
Total ...	No.	4,335	5,190	7,034	14,309	23,497	47,247	59,180	72,616	122,877	186,263
Value ...	£	1,086	1,294	1,830	3,715	6,296	12,691	16,788	21,002	55,841	90,939
Commission	£	30	36	56	99	180	370	473	598	1,063	1,576

The commission or poundage charged on postal notes is as follows:—½d. for 1s. or 1s. 6d.; 1d. for all notes from 2s. to 4s. 6d.; 1½d. for 5s.; 2d. for 7s. 6d., and 3d. for any note of a higher value.

The great increase which of late has taken place in the number and value of postal notes issued is partly due to the introduction of several additional values for which, since February, 1902, such notes may be obtained, and partly to the fact that they have been made payable throughout the Commonwealth of Australia without additional poundage.

Unclaimed Letters.

The following table shows the number of Unclaimed Letters of every description dealt with during the years 1899, 1900, 1901, 1902, and 1903:—

	1899.	1900.	1901.	1902.	1903.
Ordinary Letters, Inland	80,913	81,193	87,151	77,627	75,153
Registered Letters, Inland	2,850	3,059	2,814	2,615	2,403
Ordinary Letters returned to other countries	48,176	26,749	24,255	27,714	30,761
Registered Letters returned to other countries	604	577	554	551	604
Letters, Newspapers, etc., destroyed	62,392	103,103	126,408	114,952	98,425
Total	194,935	214,681	241,182	223,459	207,346

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Money orders, cheques, bank drafts, bank notes, postage stamps, and coin, to the value of £2,878, were returned to the senders in 1899. During 1900 the value so dealt with amounted to £3,499; whilst for 1901, 1902, and 1903 the amounts were respectively £3,740, £2,991, and £2,797.

In addition to the above, gold, silver, and other watches, jewellery, etc., of an unknown value, were also returned.

Parcel Post.

Parcels may be accepted for transmission to every country from and to all parcel post offices in the State which are served by railway, coach, or steamboat.

On March 10th, 1903, an Inland Parcel Post between the principal Western Australian Post Offices was inaugurated, the conditions as to weight and size being the same as those of the International and Interstate Parcel Post.

During that year no less than 25,448 parcels, inclusive of Value Payable Parcels, were posted inland, 6,942 of which were sent before March 10th in the ordinary way at packet rates.

Parcels must be limited in weight to 11lbs., and in size must not exceed three feet six inches in length, or six feet in girth and length combined.

Value Payable Parcel Post.—Facilities are also afforded for the transmission of small articles of merchandise, etc. The Value Payable Parcel Post is a system under which the Postal Department undertakes to deliver registered articles sent by Parcel Post within the Commonwealth, to recover from the addressee, on delivery, a specified sum of money fixed by the sender, and to remit this sum to the sender by money order, for which the usual commission is charged. This system is designed to meet the requirements of persons who wish to pay at the time of their receipt for articles sent to them, and also to meet the requirements of traders and others who do not wish their articles to be delivered except on payment. The conditions as to weight and size are the same as those of the ordinary parcel post. The number of value payable parcels sent from the 10th March to the 31st December, 1903, was 1,498.

Insurance.—Parcels to the United Kingdom and certain foreign countries may be insured to secure compensation in sums not exceeding £50.

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The importance of the business transacted by the Parcel Post during the years 1895-1903 may be gauged from the following tables :—

Interstate Parcels.

	Received.	Despatched.	Total.
1895	7,998	1,250	9,248
1896	13,835	3,000	16,835
1897	18,017	4,961	22,978
1898	16,685	5,713	22,398
1899	15,533	5,460	20,993
1900	16,715	7,745	24,460
1901	16,809	5,419	22,228
1902	18,523	5,861	24,384
1903	22,165	8,521	30,686

United Kingdom and Foreign Parcels.

	Received.	Despatched.	Total.
1895	4,125	806	4,931
1896	5,761	1,348	7,109
1897	7,045	2,818	9,863
1898	7,550	2,208	9,758
1899	8,454	2,348	10,802
1900	9,474	2,629	12,103
1901	10,057	2,362	12,419
1902	9,250	2,734	11,984
1903	10,584	2,851	13,435

Postage Stamps and Post Cards.

The Revenue derived from the sale of Postage Stamps, Post Cards, Parcels Postage, Postage on Official Correspondence, etc., in the past seven years, has been as follows :—

Year.	Postage Stamps.	Post Cards.	Parcels Postage.	Postage on Official Correspondence, etc.
	£	£	£	£
1897 ...	84,348	991	1,158	9,635
1898 ...	83,633	958	731	7,699
1899 ...	79,765	994	887	8,353
1900 ...	85,289	1,148	759	9,531
1901 ...	85,506	1,324	959	9,572
1902 ...	133,935	1,365	1,005	8,874
1903 ...	104,025	1,473	1,053	3,377

Money Orders.

There were, at the end of 1903, 135 Money Order Offices in existence in Western Australia.

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The number and amount of Money Orders (including Telegraphic Orders) issued and paid during the years 1894 to 1903, and the total amount of commission received during each year, were as follows :—

Year.		Issued.		Paid.		Amount of Commission.
		Number.	Amount.	Number.	Amount.	
			£		£	£
1894	Inland	9,448	27,063	9,460	27,289	1,298
	Foreign	26,789	105,470	5,882	36,968	
	Total	36,237	132,533	15,342	64,257	
1895	Inland	15,512	47,382	15,419	46,773	2,337
	Foreign	56,270	234,190	8,836	50,585	
	Total	71,782	281,572	24,255	97,358	
1896	Inland	30,497	116,876	30,064	108,001	5,915
	Foreign	165,136	732,605	11,775	70,230	
	Total	195,633	849,481	41,839	178,231	
1897	Inland	46,506	173,078	45,994	174,954	13,488
	Foreign	205,652	886,451	14,434	72,437	
	Total	252,158	1,059,529	60,428	247,391	
1898	Inland	67,439	253,996	67,404	253,558	12,821
	Foreign	163,948	634,393	13,380	77,039	
	Total	231,387	888,389	80,784	330,597	
1899	Inland	65,980	242,133	66,099	241,924	10,242
	Foreign	107,552	413,679	20,339	70,315	
	Total	173,532	655,812	86,438	312,239	
1900	Inland	69,277	270,900	68,410	271,864	9,281
	Foreign	114,390	431,973	17,888	64,693	
	Total	183,667	702,873	86,298	336,557	
1901	Inland	69,810	275,952	66,512	273,977	8,843
	Foreign	122,667	449,632	15,568	64,646	
	Total	192,477	725,584	82,080	338,623	
1902	Inland	71,965	301,957	69,903	299,593	9,683
	Foreign	117,549	466,794	15,797	73,096	
	Total	189,514	768,751	85,700	372,689	
1903	Inland	84,438	362,914	83,497	362,078	8,106
	Foreign	112,969	476,159	16,658	89,696	
	Total	197,407	839,073	100,155	451,774	

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It will be seen from the foregoing table that the number of Money Orders issued increased from 36,237 in 1894 to 252,158 in 1897, the year in which the largest number of orders appears to have been issued, as from that year to 1899 a decline in the volume of business under this head was experienced, followed by a subsequent rise resulting in a total of 197,407 being reached for 1903.

In 1894 orders were issued—payable within the State and abroad—for £132,533, the amount increasing rapidly during the next three years up to 1897, when it reached the enormous total of £1,059,529. The "orders" issued during 1902 were payable in the following countries: £301,957 in Western Australia; £221,695 in Victoria; £72,395 in New South Wales; £67,739 in South Australia; £24,276 in other Australasian States; £39,612 in the United Kingdom; £8,051 in other British Possessions, and £33,026 in Foreign Countries. In 1903 the "orders" amounted to £839,073, being issued as follows:—£362,914 payable within the State; £227,875 payable in Victoria; £73,606 payable in New South Wales; £78,381 payable in South Australia; £23,452 payable in other Australasian States; £40,209 payable in the United Kingdom; £7,700 payable in other British Possessions, and £24,936 in Foreign Countries; of the total amount, therefore, issued by Money Order Post Offices in Western Australia during the twelve months, £476,159 was payable abroad.

It is noticeable that during the years 1898-1903 the amounts did not fluctuate very considerably, the only really great difference being in the amounts of Foreign orders issued, which fell from £634,393 in 1898 to £413,679 in 1899, and rose again slightly during the next four years.

The number of "orders" drawn by foreign offices and made payable in Western Australia increased from 5,882 in 1894 to 16,658 in 1903. During 1894, £36,968 was paid out by the Post Office Department of Western Australia on foreign "orders"; from that period there was a yearly increase up to the 31st December, 1898; the amount then paid being £77,039; since when it decreased to £64,646 in 1901; in 1902 it rose once more, however, to £73,096, whilst in 1903 it reached £89,696.

Since the above was written, the following figures for 1904 have become available:—

Post Offices on 31st December, 1904	No.	243
Inland letters posted during 1904	„	10,051,505
Letters posted for places beyond the State, 1904 ...	„	3,093,445
Letters received from places beyond the State, 1904 ...	„	4,256,979
Total Letters	„	17,401,929

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Registered letters included in above	No.	272,874
Inland postcards posted during 1904	,,	427,897
Postcards posted for places beyond the State, 1904 ...	,,	104,758
Postcards received from places beyond the State, 1904...	,,	653,475
Total Postcards	,,	1,186,130
Inland packets posted during 1904	,,	1,761,005
Packets posted for places beyond the State, 1904 ...	,,	668,527
Packets received from places beyond the State, 1904 ...	,,	1,234,445
Total Packets	,,	3,663,977
Inland parcels posted during 1904	,,	43,034
Parcels posted for places beyond the State, 1904 ...	,,	12,362
Parcels received from places beyond the State, 1904 ...	,,	36,770
Total Parcels	,,	92,166
Inland newspapers posted during 1904	,,	2,680,425
Newspapers posted for places beyond the State, 1904...	,,	1,388,253
Newspapers received from places beyond the State, 1904	,,	4,509,732
Total Newspapers...	,,	8,578,410

The total declared value of the parcels received in the State during 1904 was £12,463.

Postal notes sold in the State during 1904:—

Value of Notes	Number.	Value of Notes.	Number.
s. d.		s. d.	
1 0	8,594	4 6	6,945
1 6	4,449	5 0	27,417
2 0	10,182	7 6	8,367
2 6	11,061	10 0	40,078
3 0	13,070	10 6	5,752
3 6	7,895	15 0	13,791
4 0	12,865	20 0	61,380
		Total ...	231,846
		Value ...	£115,416

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Money orders issued and paid in Western Australia during 1904:

Where payable or where issued.	Issued.				Paid.			
	No.	Amount.			No.	Amount.		
		£	s.	d.		£	s.	d.
*United Kingdom ...	17,247	62,637	4	8	2,944	9,775	11	6
Western Australia ...	89,251	392,402	12	0	88,697	385,386	6	1
South Australia ...	18,049	76,310	0	1	2,577	14,650	18	4
Victoria	50,083	218,480	18	10	5,962	34,483	7	11
New South Wales ...	17,041	76,358	1	11	3,237	17,046	2	4
Queensland	2,235	10,851	10	4	524	3,358	15	0
Tasmania	1,556	7,955	18	0	1,132	6,834	17	7
New Zealand	1,391	5,830	10	7	1,127	3,655	15	0
India	734	5,263	4	4	81	258	9	10
Hong Kong	202	965	12	4	29	212	6	6
Cape of Good Hope ...	65	242	14	10	145	679	18	2
Natal	59	255	1	6	212	1,040	1	6
Singapore	90	346	8	3	65	333	12	4
Ceylon	143	398	0	5	31	90	0	11
Mauritius	18	24	1	4	7	18	4	1
Germany	429	2,093	4	0	72	444	18	7
Fiji	4	2	6	0	11	11	15	11
Transvaal	78	392	4	7	548	3,066	11	1
Total	198,675	860,809	14	0	107,401	481,347	12	8

* Orders on and from all foreign countries except those shown in this table are included under this head.

Revenue of the Postal, Telegraph, and Telephone Department of the State for 1904:—

	£
Postages and Postal Fees	121,604
Telegraph Receipts	69,641
Telephone Receipts	30,970
Commission on Money Orders and Postal Notes ...	8,967
Private Boxes and Bags	1,702
Miscellaneous Receipts	2,780
Total	£235,664

Expenditure of the Postal, Telegraph, and Telephone Department of the State for 1904:—

	£
Salaries	164,085
Allowances and Temporary Assistance	17,057
Travelling Expenses	5,467
Stationery and Printing	6,187
Pensions	851
Incidental and Miscellaneous	11,197
Conveyance of Mails	61,427
Telegraph and Telephone Instruments, etc.	1,506
Telegraph and Telephone Lines, Construction and Maintenance	26,997
Construction of and Additions to Post and Telegraph Office Buildings	2,523
Maintenance, Fittings, Furniture, and Rent of Post and Telegraph Offices	3,430
Total	£300,727

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7.—TELEGRAPHS.

The first telegraph line in Western Australia was that between Perth and Fremantle, a distance of exactly twelve miles; it was constructed by a private company, and opened for traffic on the 21st June, 1869, and was taken over by the Government during April, 1871.

The line from Perth to York was finished and opened for traffic on the 6th of January, 1872. The line to Albany commenced business on the 26th of December in the same year. The line to Geraldton was completed on the 13th of May, 1874. The Eucla (Interstate) line, connecting Western Australia with the other Australian States, was finished on the 8th of December, 1877, and at the end of that year the Government owned 1,515 miles of telegraph lines. The discovery of the gold mines at Yilgarn necessitated the construction of the line to Southern Cross, which was opened for business in February, 1892. The line from Perth to Wyndham, which is 2,125 miles in length, thus completing, with the 1,006 miles of line between Perth and Eucla, a total distance of 3,131 miles of telegraph, connecting the settlement in the extreme North of the State with that situated on its South-Eastern boundary, was opened in January, 1893. During the same year, also, the lines to Karridale and Broomehill were constructed.

In 1894, the line from Southern Cross was extended to Kalgoorlie, the Geraldton line to Cue and Nannine was opened, and Marble Bar was connected with Condon. At the close of the year 1894 there were, altogether, 4,403½ miles of telegraph lines under control of the Telegraph Department.

The lengths erected for the year 1895 were 174 miles of poles and 660 miles of wire, 486 miles of the latter being duplications of existing lines. Up to the close of 1895, 4,577 miles of telegraph lines had been constructed, the cost of which was £269,308. The construction of telegraphs and telephones was transferred during this year from the Public Works Department to the Postal Department.

Of poles 853 miles, and 1,278 miles of wire were erected in 1896, principally on the goldfields, the most important work of the year being the construction of the line from Coolgardie to Eucla, *via* Dundas, a distance of 550 miles; extra wire, 130 miles in length, was also added to the Perth to Northam line.

In 1897, 541½ miles of poles and 1,288½ miles of wire were erected; two copper wires (340 miles) were placed on the Northam-Southern-Cross line, one copper wire (73 miles) on the Mullewa-Yalgoo route, two copper wires (24 miles) on the Perth-Fremantle line, and one each on the suburban lines to Subiaco and Leederville (three miles); making a total of 440 miles of copper wire for the year. New lines: of iron wire, from Niagara to Lawlers, including Mt. Margaret and Mt. Leonora branch, 210 miles; Marble Bar to Nullagine, 61 miles; Pilbara to Western Shaw, 75 miles; Minginew-Mullewa, including loop from main line, 47 miles of poles and 118 miles of wire; and Yalgoo to Gullewa, 46 miles, were constructed during the twelve months.

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During 1898, 101 miles of poles and 562 miles of wire were erected; 230 miles of copper wire were added to the Coolgardie line, 52 miles to the Yalgoo-Cue line, 63 miles to the Perth-Helena Vale line, 40 miles to the Geraldton-Walkaway line, and 12 miles to the Perth-Suburban lines, making a total of 397 miles of copper wire which had been added to existing lines during the year. Apart from this the most important work of the year was the construction of the line from Nannine to Peak Hill, with 103½ miles of iron wire. The total mileage on the 31st December, 1898 was 5,886 miles of poles and 8,660 miles of wire.

During 1899 a further 54¾ miles of poles and 168½ miles of wire were added, the iron wires between Coolgardie and Kalgoorlie being replaced by copper wires, whilst Mount Margaret was connected with Laverton.

The additions in 1900 were 111¼ miles of poles and 123¼ miles of wire, the principal connection being the line between Lawlers and Wiluna, which consisted of 107¼ miles of iron wire.

During 1901, 120¾ miles of poles and 232¼ miles of wire were erected. The principal lines undertaken were those to Ravensthorpe and Mulline, and the duplication to Mount Malcolm. The total mileage on the 31st December, 1901, was 6,111¾ miles of poles and 9,104½ miles of wire.

No additional lines were constructed during 1902.

In 1903 a total length of 270 miles of line was constructed, the principal line being that connecting Midland Junction with Minginew, 246½ miles, whilst others were the Norseman-Princess Royal, the Kookynie loop, the Brown Hill loop, the Trafalgar loop, and the Kathleen Valley phonophone.

The principal expenditure on telegraph construction until the year 1896 was from Loan Funds; after the taking over of the construction of the telegraph lines by the Post and Telegraph Department, the cost was for some time defrayed from Consolidated Revenue.

Details of the expenditure on construction from the 30th June, 1895, are as follows:—

Year ended 30th June.	From Loans.	From Revenue.	Total.
	£	£	£
1896	10,952	13,791	24,743
1897	...	53,245	53,245
1898	...	11,045	11,045
1899	6,135 *a*	...	6,135
1900	5,719 *a*	843	6,562
1901	17,019 *a*	...	17,019
1902	...	...	...
1903	...	2,898	2,898
Totals ...	39,825	81,822	121,647

a Classified as Development of Goldfields.

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Cable communication is available from Western Australia to Europe, either direct by Roebuck Bay or *via* Adelaide and Port Darwin, or *via* South Africa. Roebuck Bay, 2,491 miles from Eucla, is the station where the alternative cable of the Eastern Extension Telegraph Cable Company from Banjowangie is landed.

The distance to London, *via* Roebuck Bay, is :—

Perth to Roebuck Bay	1,485	miles
Roebuck Bay to Banjowangie	970	„
Banjowangie to London	9,841	„
Total	12,296	„

Via Port Darwin—

Perth to Eucla	1,006	miles
Eucla to Adelaide	1,000	„
Adelaide to Port Darwin	2,134	„
Port Darwin to Banjowangie	1,150	„
Banjowangie to London	9,841	„
Total	15,131	„

And *via* South Africa—

Perth to Cocos Island	1,777	miles
Cocos Island to Rodriguez	2,235	„
Rodriguez to Mauritius	405	„
Mauritius to Durban	1,786	„
Durban to Cape Town ... (about)	800	„
Cape Town to St. Helena	1,891	„
St. Helena to Ascension	820	„
Ascension to St. Vincent	1,828	„
St. Vincent to Madeira	1,176	„
Madeira to Penzance	1,341	„
Penzance to London ... ... (about)	260	„
Total	14,319	„

Number of Telegrams transmitted and Revenue therefrom during the years 1902 and 1903.

—	1902.		Total.	Value.		
	Outward.	Inward.		£	s.	d.
Local Traffic	...	...	878,469	48,153	11	6½
Interstate Traffic	165,254	141,025	306,279	17,436	2	5
Cablegrams, West Australian	15,916	11,703	27,619	*a* 6,740	19	4½
„ for other States	1,308	1,386	2,694	461	7	6
Registration Fees, etc. ...	...	...	...	250	12	0
Totals	...	...	1,215,061	73,042	12	10½

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Number of Telegrams transmitted—continued.

—	1903. Outward.	1903. Inward.	Total.	Value. £	s.	d.
Local Traffic	...	...	1,072,774	47,406	11	5
Interstate Traffic	272,327	208,417	480,744	21,239	1	1
Cablegrams, West Australian	19,424	14,751	34,175	b 52,933	10	8
" for other States	...	41	41	38	10	0
Registration Fees, etc. ...	...	...	...	262	9	0
Totals	...	...	1,587,734	121,880	2	2

a Proportion retained by State, not actual value. b Actual value; the proportion retained by the State was £7,023 5s. 1d.

The falling-off in the numbers of inward and outward cables for the other States was due to the construction of the through line from Cocos Island direct to Adelaide, and the laying of the Pacific cable.

ELECTRIC TELEGRAPHS, 1894 TO 1903.

Year.	Number of Stations.	No of miles of poles.	No. of miles of wire.	No. of messages paid and unpaid. Between Stations.	Foreign and Interstate.	Total.	Receipts. £
1894 ...	73	4,403	4,939	300,936	145,844	446,780	25,936
1895 ...	88	4,577	5,670	462,756	258,236	720,992	61,673
1896 ..	111	5,429¾	6,948	776,097	402,309	1,178,406	99,088
1897 ...	142	5,845	8,111	869,269	436,734	1,306,003	98,696
1898 ...	147	5,886	8,660	839,290	339,638	1,178,928	77,801
1899 ...	154	5,941¼	8,749	803,507	333,006	1,136,513	81,365
1900 ...	161	6,052¼	8,872¾	859,942	307,255	1,167,197	75,014
1901 ...	167	6,111¾	9,104½	912,335	313,264	1,225,599	82,533
1902 ...	167	6,111¾	9,104½	878,469	336,592	1,215,061	80,199
1903 ...	172	6,079	9,369	1,072,774	514,960	1,587,734	68,137

From the above table it will be observed that during the last ten years there has been a great development in the telegraph system of the State, with a consequently corresponding increase in the business transacted over the various lines, which now connect almost all towns and mining centres in Western Australia. The number of stations increased from 73 to 172; the miles of poles from 4,403 to 6,079; the miles of wire from 4,939 to 9,369; the number of messages received and transmitted from 446,780 to 1,306,003 during 1897, after which they decreased slightly to 1,136,513 during 1899, but since then continued again to increase, until in 1903 they numbered 1,587,734. From 1893, following up the extension of the lines to the Eastern goldfields, the business of the department for the years 1894, 1895, and 1896 progressed at a rapid rate, the receipts being respectively £25,936, £61,673, and £99,088. After a slight fall to £98,696 in the following year, they suddenly, in 1898, owing to the slump in the share market, fell to £77,801, and then fluctuated to £82,533 in

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1901, receding to £80,199 in 1902, and still further to £68,137 in 1903. The falling-off during the latter two years was due to the reduction in rates from the first of November, 1902.

The following figures for 1904 have been supplied since the above was written:—

Telegraph and Telephone Offices in the State on 31st December, 1904	No.	183
Telegraph Lines in the State on 31st December, 1904	Miles.	6,199
Telegraph Wire in the State on 31st December, 1904	„	9,414
Inland Telegrams sent during 1904	No.	1,003,335
Intercolonial Telegrams sent during 1904	„	298,846
Intercolonial Telegrams received during 1904 ...	„	226,412
Cables sent during 1904	„	19,305
Cables received during 1904	„	14,488
Total Telegrams and Cables	„	1,562,386
Telegraph Receipts during 1904		£69,641

8.—TELEPHONES.

On the 31st July, 1882, Mr. (now Sir) George Shenton, in the Legislative Council, asked the Honourable the Colonial Secretary to lay on the table a return showing the cost of construction and maintenance of a telephone system in the towns of Perth and Fremantle. The then Colonial Secretary, Lord Gifford, V.C., in consenting, said, that from inquiry already made there was every prospect of such a system, if established, being self-supporting.

On the 24th of August, therefore, of the same year, a motion brought forward by Mr. Shenton was agreed to, namely, that the Government should ascertain whether a sufficient number of subscribers could be obtained to warrant the establishment of a telephone system in and between Perth and Fremantle.

The matter was again brought forward by Mr. Shenton on the 8th April and on the 3rd August, 1883, when it was ascertained that, unfortunately, a sufficient number of subscribers could not be obtained, so little value being then placed upon this now almost indispensable convenience.

On the 4th September in the same year a proposal was made by Mr. B. C. Wood to establish telephonic communication in and between Perth and Fremantle on certain terms, but nothing finally eventuated.

Sir Thomas Cockburn-Campbell, on the 4th of August, 1884, once more brought the matter under notice, with the result that on the 27th August a message from the Governor announced that the desired action would be taken, provided inquiry showed that the system could be established on a self-supporting basis. On the 5th September Sir Thomas Cockburn-Campbell formally moved that he select committee on public works be instructed to consider

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the question; the result of which was that the Government placed a sum of £2,000 on the 1885 Estimates for the establishment of a Telephone Exchange.

The telephone exchange system was opened in Perth on the 1st December, 1887, with 17 subscribers, and at Fremantle on 1st January, 1888, with 9 subscribers.

The number of public subscribers for the two places, at the end of 1888, was only 63.

Telephone Bureaux.

At the present time (1904) Telephone bureaux are established at the following telegraph offices:—

METROPOLITAN AREA.

General Post Office ...	... Open continuously throughout the year.
Perth Railway Station Fremantle Post Office Fremantle Railway Station Fremantle Town Hall Claremont Post Office Cottesloe Post Office Subiaco Post Office Midland Junction Post Office	Open 7 a.m. to 6 p.m. (Sundays excepted).
Leederville Post Office	Open 9 a.m. to 6 p.m. (Sundays excepted).

GOLDFIELDS AREA.

Boulder Post Office Coolgardie Post Office Kalgoorlie Post Office	Open 7 a.m. to 6 p.m. (Sundays excepted).

The fee for local calls is uniformly 3d. (trunk calls, minimum 6d.) for a conversation of three minutes, or part of three minutes, whether the call be made by subscribers or non-subscribers; and the period for which a line may be used by any one person does not exceed six (6) minutes in cases where other persons are waiting to use the line. Should the line be engaged, applicants are registered and connected in the order of priority.

Telephone Exchanges.

Name of Exchange.	Ordinary Hours of Attendance.		Remarks.
Perth	Open all day and night		On Christmas Day closed from 6 p.m. till 11 p.m.
Fremantle ...	Do.	do.	
Coolgardie ...	Do.	do.	
Cottesloe ...	Do.	do.	
Kalgoorlie ...	Do.	do.	
Boulder ..	Do.	do.	
Albany	Do.	do.	
North Fremantle	Open 8 a.m. till 11 p.m.		On Sundays and holidays open from 9 a.m. till 11 p.m., and on Good Friday and Christmas Day from 9 a.m. till 7 p.m.
Guildford ...	Do.	do.	
Geraldton ...	Do.	do.	
South Perth ...	Do.	do.	
Northam ...	Do.	do.	
Bunbury ...	Do.	do.	

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Telephone Returns for the Years 1894 to 1903.

Year.	Number of Subscribers.		Total.	Mileage of Wire.	Annual Revenue.
	Private Subscribers.	Government Departments.			
					£
1894	225	94	319	387	2,533
1895	373	121	494	462	3,853
1896	749	193	942	577	6,264
1897	1,345	244	1,589	1,527	11,886
1898	1,586	329	1,915	2,099	18,490
1899	1,797	318	2,115	2,102	20,705
1900	2,042	403	2,445	4,006	23,510
1901	2,335	429	2,764	4,944	26,950
1902	2,536	405	2,941	4,947	29,464
1903	2,881	451	3,332	5,431	30,324

From the foregoing table it will be seen that the Telephone System of the State has made great progress in the last decade. At the close of the year 1894 there were 319 subscribers—including Government Departments—using 387 miles of wire, while the total revenue for that year was only £2,533. On the 31st December, 1901, the subscribers numbered 2,764, the mileage of wire had increased to 4,944 miles, and the receipts for the twelve months were £26,950, whilst in 1902 the corresponding figures were:—2,941 subscribers, 4,947 miles of wire, and receipts to the amount of £29,464. A further increase took place in 1903, when the number of subscribers rose to 3,332, the mileage of wire to 5,431, and the receipts to £30,324.

On the 31st December, 1904, the total number of telephones in use, in connection with the Exchange system, was 4,597, and the length of telephone wire was 6,016 miles.

Railway Telephone Lines.

	Miles of wire.
Government Railways	7.178
Midland Railway	277
Jarrahdale Railway	32½
Karridale Railway	32
Torbay-Denmark Railway	38½
Mornington Railway	6
Yarloop Railway	19
Upper Darling Railway	3½
Waroona Railway	12
Ferguson River Railway	13
Kurrawang Railway	40
Total	7,651½

Grand Total Telephone Lines.

	Miles.
Telephone Exchange	6,016
Railway	7,651½
Total	13,667½

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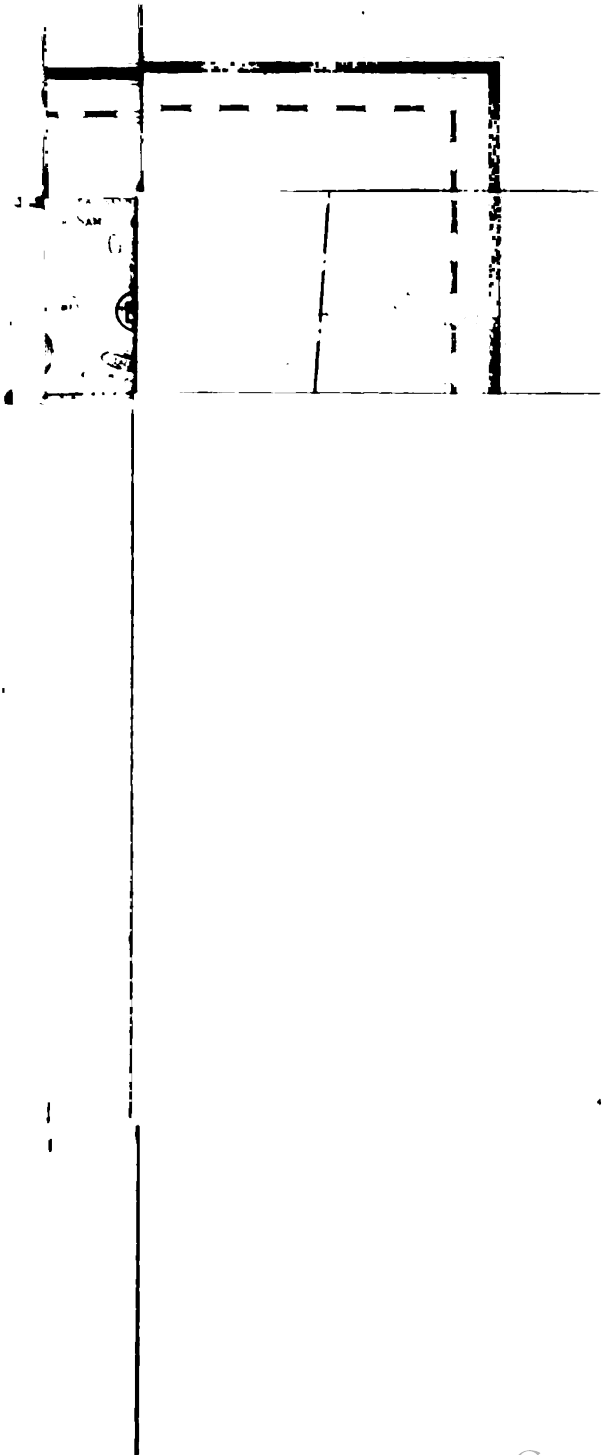

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PART IX.—MINERAL RESOURCES.

1.—HISTORY OF MINERAL DISCOVERIES.

(Revised by A. Gibb Maitland, Government Geologist.)

The discovery of gold in New South Wales and Victoria, in the year 1851, wrought an almost magical change in the material welfare of those colonies. Where, prior to that date, the growth had been comparatively tardy, now began an era of rapid and substantial progress. The population increased, towns and cities arose, roads were opened, while agricultural and all other industries were stimulated, and a strong local market was at once created for all industrial products.

It is hardly, therefore, to be wondered at that the attention of the early settlers in Western Australia was directed towards the discovery of mineral deposits.

The history of mining in this State dates back as far as the year 1842, with the finding of lead and copper in the Victoria District. The discoverer of copper was a man named Thomas Mason, at that time following the humble occupation of shepherd in the employ of the late Mr. James Drummond. He was stationed at Wanerenooka, and there found the deposits which were afterwards worked with success. Mr. Mason sold his find for £100, and a promise of £100 a year and work for three teams, if the parties were successful in purchasing the land, which in those days had to be put up to public auction. The annuity and work were to continue so long as the mine should be working. The company which was subsequently formed did not ratify the £100 a year part of the arrangement; but Mason worked a team on the road drawing copper ore during 1858 and 1859, until he left this Colony for the gold diggings in Victoria. Several mines were started, and smelting works erected by English companies, who worked them at a profit for many years. The first great check these mines received was caused by the exodus of miners to the Victorian goldfields, and as no others were to be obtained in the Colony, and very few would leave England for any other part of Australia but Victoria, the mines were practically closed down. A second attempt was made to work them some years later, but it was not altogether a success, owing to the great fall in the price of both lead and copper, iron having in a great measure replaced copper in ship-building and lead for pipes, tanks, and roofing; not to mention the phenomenally rich discoveries of copper in South Australia and Spain, which flooded the market.

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As early as March, 1839, the Government had offered a grant of land of 2,560 acres to any person pointing out any considerable bed of coal in any part of the territory south of the parallel of the most northern part of Shark Bay and West of the meridian of Mt. Barren.

1839.

In the year 1846 Mr. A. C. Gregory reported the discovery of coal on the Irwin River. In July of the same year, Mr. Beacham, while digging a drain on the South side of the Murray River—about 35 miles from Fremantle—found specimens of a substance resembling coal. Samples were submitted to Mr. Birch, an English chemist, residing at Fremantle, who at once pronounced them "coal of an inferior quality, similar however to that usually found at or near the surface." The discovery was confirmed by Messrs. Singleton, Lefroy, Nash, and Moore, who, a few days after, visited the Murray.

1846.

Public meetings were shortly after held at Perth and Fremantle, and committees were appointed to raise money for prospecting purposes. In September, the prospectus of the first mining company organised in Western Australia was issued, "The Western Australian Mining Company," with a capital of £20,000, in 10,000 shares of £2 each.

The Government, about this time, realising the importance of the discovery of coal beds in the Colony, offered a reward of 2,500 acres of land to any person discovering a payable coalfield. Thus encouraged the company immediately commenced operations at the Murray, but the results not meeting the expectations of the sanguine shareholders, the latter became dissatisfied, and in March, 1847, Dr. F. Von Sommer, an expert from abroad, commissioned by the Government to examine and report on the coal and mineral resources of the colony, visited the workings and expressed himself as not being very hopeful as to the prospects of coal being found in payable quantities. In December work was discontinued at the shaft, owing to the presence of water and quicksand. Dr. Von Sommer stated that he had found evidences of the existence of "subterranean lead veins" in the neighbourhood of their prospecting works, but at the same time said "shafts sunk in this district were not promising or worth continuing, for with the increase of depth iron took the place of lead." As indications of copper had been found near Kelmscott, the company, in hopes of finding lead or copper ore in payable quantities on their property, continued operations until the latter part of the year 1849, when, not finding any encouraging prospects, and fears being entertained by the shareholders that it would be necessary to levy an assessment to carry on the work, they decided to abandon the property and dissolve the company, which was finally accomplished in the early part of the year 1850.

1847.

In the years 1848 and 1849, Capt. Roe, then Surveyor General, and Mr. Gregory, Assistant Surveyor, reported the discovery of coal in the bed of the Fitzgerald and Phillip rivers, on the

1848.

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South coast, about 100 to 150 miles East of Albany, but, unfortunately, in both places the seams proved to be valueless.

The copper and lead deposits on the Murchison were discovered in 1848; specimens from this vicinity were first received in Perth during August of that year, and on being sent to Adelaide for assay were found to contain not only copper and lead, but also "traces of gold," and one piece the assayer certified as being richer in silver than any ore found up to that time in South Australia.

The Government immediately despatched a party to the scene of the discovery, under the leadership of Mr. A. C. Gregory, who in his journal wrote: "Mr. Walcott brought in some specimens of galena which upon examination proved to be abundant in the bed of the river."

Mr. Gregory found, near the Bowes River, "garnets, iron pyrites, and a mineral resembling plumbago," and had "little doubt a further search would develop many hidden sources of wealth."

1849. In the *Government Gazette* of 20th March, 1849, the public were notified that, on the 18th April, 640 acres of mineral land on the Murchison River would be offered for sale by auction at an upset price of £1 per acre. The property was purchased by a Perth Company, organised with a capital of £640, in 32 shares of £20 each. A mine was opened, and named the "Geraldine"; Messrs. A. O'G. Lefroy, G. Shenton, and R. M. Habgood were elected trustees of the company, and Mr. W. Burges superintendent. The next step was to advertise for tenders to extract and haul 100 tons of ore to Champion Bay. Meanwhile it had become noised about that the natives in the vicinity of the claim had threatened hostilities; in consequence of this rumour no one was very anxious to take contracts for mining and carting through this unknown region. In this extremity the Government were petitioned to furnish a guard of soldiers; the petitioners' prayer was granted, the authorities promising an escort of 25 men. But even after this promise there was no rush of teamsters, and a meeting of the company being called, it was decided to purchase a team. However, while negotiations were pending for the purchase of horses, the company succeeded in hiring two teams for a term of three months; then miners were engaged for the same period, and the party, accompanied by a guard of seven soldiers, started for the Murchison. On arrival at the mine the party in a short time succeeded in taking out over a ton of lead ore, which was at once despatched to Champion Bay. Mr. Burges, in his report to the directors of the company, was very enthusiastic over the prospects; he had found copper and zinc, and as there was plenty of timber in the vicinity, he advised that smelting works be erected in the neighbourhood of the mine.

1850. In January, 1850, the mine was sold by the original shareholders for £1,600, payable in shares. A new company was immediately launched with a capital of £6,400, in 1,280 shares of £5 each. Mr. R. J. Sholl was appointed secretary, and it was resolved to obtain

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the services of an experienced mining captain, and to erect a furnace. The new captain, a Mr. James, in a most glowing report from the mine, stated "that there was a fine lode 2ft. 4in. wide with 18 inches of solid galena." The copper ore found on the property proved exceptionally rich, samples assayed by Mr. Gregory carrying on an average over 25 per cent. of that metal.

1852. In the latter part of 1852 three or four parties were despatched to the Eastward of York and Newcastle, seeking for gold; but owing to climatic causes—scarcity of feed and water for their horses—they were forced to abandon the search when but a short distance from the now well-known Yilgarn Goldfield. It is but reasonable to suppose that there were no experienced prospectors in the Colony at that time, and as there is nothing in the general appearance of a gold-bearing country to attract the attention of the inexperienced gold-seeker, it is nothing more than could be expected that, as we subsequently learn, they passed over good indications without even suspecting the presence of the precious metal.

1853. Rich specimens of gold-bearing stone were found in 1852-53 by shepherds and others, out Eastward, but unfortunately they were unable to afterwards locate the places where they discovered the stone. On the strength of these finds the sum of £357 was subscribed at a public meeting held in Fremantle in January, 1854, towards a reward to be given for the discovery of gold in the Colony.

1854. Quite an excitement was caused in March, 1854, by the reported discovery of gold at Cardup, about 25 miles from Fremantle, and in a few days over 100 men were on the ground. Mr. A. C. Gregory visited the spot, and found that the prospectors had sunk six or seven holes to a depth of from three to fifteen feet, the diggers claiming to have found gold in all of them. Mr. Gregory, upon examination, found it to be yellow mica and iron pyrites scattered in small particles through a formation consisting of decomposed slate and quartz. After a critical analysis he could not find the slightest trace of gold in any of the stone, and was of the opinion "that the chemical agents used by those who found gold in specimens of rock taken from Cardup had been adulterated with the precious metal, either accidentally or by design, to attract public attention, as had been the case on more than one previous occasion."

In the same year Mr. Gregory visited the Murchison District, and, at the Bowes River, found in a fragment of quartz, taken from a vein in that neighbourhood, a very minute speck of gold, and this, he said, was the only occasion on which he observed gold in the rocks of the district. Later that year, Mr. Austin ascended to the top of Mount Magnet, where he found "small, delicate layers of a crystalline substance resembling quartz; the rock had great magnetic power; each bit of stone had two poles like a magnet or loadstone, attracting and repelling the point of the magnetic needle." For this reason he named it "Mount

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Magnet." He further said that "the geological formation of the country east of the Murchison River had every appearance of being one of the finest goldfields in the World."

1855. In the latter part of the year 1855, high-grade copper ore was discovered at the Bowes River. The property—90 acres in extent—was purchased by Mr. Jas. Drummond for the Wanerenooka Mining Company. In 1856, 57 tons of copper ore were shipped from the Bowes and Murchison districts. The account sales of the first shipments from the Wanerenooka mine showed that the ore realised £27 13s. 4d. per ton, and shareholders were jubilant. The balance-sheet of the company for March, 1858, showed that they had a credit balance of over £1,350, while the property was valued at £9,400.

1857. In the Blue Book, 1857, Mr. F. P. Barlee, then Colonial Secretary, under the "Return of Manufactories, Mines, and Fisheries," made the following entry: "Mineral indications abound in the Northern parts of the Colony. Specimens (surface) of gold have been found, and there is but little doubt that gold will eventually be found in Western Australia to a large extent."

From 1857 to 1864 the search for gold was carried on, but, unfortunately, without meeting with the success it deserved.

1859. The Wheel of Fortune and several other mines in the Champion Bay district were opened up, and by the end of 1859 the shipments amounted to 941 tons, all remarkably high-class ore; sales of large parcels were made at Swansea, carrying from 20 to 35½ per cent. copper, and realised up to £35 14s. per ton. Up to the close of 1859, in all 577 tons of pig lead, valued at £11,640 sterling, were shipped from the Geraldine Smelting Works; after the latter date but little smelting was done.

1861. In the latter part of 1861 Mr. Panton, while on a trip to the Eastward of Northam, picked up several specimens of gold-bearing quartz. Public meetings were immediately held, and in a short time the sum of £2,500 was privately subscribed, whilst the Government promised an equal amount for the discovery of a workable field within a radius of 150 miles of the Perth Post Office. A short time after a shepherd brought into Northam several specimens containing free gold, which he found 25 or 30 miles to the Eastward, but most unfortunately he was unable to find his way back to the spot where he had discovered the gold-bearing stone.

1862. In 1862 the Government engaged Mr. E. H. Hargraves, a practical miner, who had discovered the New South Wales goldfields in 1851, to search for precious minerals throughout the settled districts of the Colony, for a period of six months or longer if necessary. Landing at Albany, he prospected the country as far as Northam and through the Darling Range. He made a very unfavourable report, stating that the formation of the area over which he had travelled was of such a character that gold would never be found in large or payable quantities; indeed, so confirmed was

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he in his opinion that in January, 1864, he wrote an article on "The non-auriferous character of the rocks of Western Australia," which was published in the Journal of the Royal Geographical Society of that year; Hargraves, however, expressed the opinion that the Colony was rich in copper, lead, and iron.

1864. In 1864 a convict named Wildman, serving a 15-year sentence at Fremantle, told the prison authorities that in 1856 he was first mate of a Dutch vessel, the "Maria Augusta," which became disabled on the Nor'-West coast. They anchored in a bay (supposed to be Camden Harbour) to make the necessary repairs. While there he wandered off a short distance in the bush, where, in a certain place which he had marked, he in a short time found eight nuggets of gold, which he disposed of to a bullion dealer in Liverpool for £416. He offered, if the balance of his term (12 years) was remitted, to lead an expedition to the spot. A company was quickly organised, the Government contributing £150 towards defraying the expenses, and Mr. Panton, inspector of police, was appointed leader of the expedition, which sailed from Fremantle in the "New Perseverance" on March 2nd. On reaching Camden Harbour Wildman refused to point out the spot. Mr. Panton and his party searched diligently, traversing the country 20 miles inland, but failing to find any signs of the precious metal, they returned to Fremantle.

1865. In 1864 and 1865 parties under the leadership of Mr. C. C. Hunt penetrated to the eastward of York, 300 miles or more. They named the "Hampton Plains" in honour of the then Governor, and on the second trip (1865) formed a camp on them and explored the country for many miles in all directions, visiting Lake Lefroy and the Dundas Hills, and it is more than probable travelled over the rich Coolgardie goldfields. Mr. Hunt said: "The Hampton Plains would require a large expenditure in making dams and digging wells before they could be used for pastoral purposes," and he described the large masses of trap rock abounding in that vicinity as being similar in character to that which he had seen on the Victorian goldfields. Specimens were sent to the Rev. W. B. Clarke, at Sydney (at that time considered one of the best geologists in Australia), who in his report described one piece as "cavernous quartz, part of a vein."

1869. In the *Government Gazette*, 20th July, 1869, £5,000 reward was offered for the discovery of a payable goldfield within 300 miles from any declared port of the Colony, to be paid after 5,000 ounces of gold, either alluvial or extracted from quartz, had been shipped to Great Britain.

1870. Acting-Governor Bruce, in his report on the "Condition of the Colony" in 1870, considered "the geological formation such as would indicate the presence of gold." At this period the Darling Range claimed the almost exclusive attention of gold seekers, and considerable work in a crude way was performed at various points; a party at North Dandalup claimed to have discovered an immense reef over sixty feet wide, which could be

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traced on the surface for over half a mile, and to have obtained gold from three holes sunk on the reef. A report was current in January, 1870, that gold had been found at the Blackwood.

Alluvial gold was found by a shepherd at Peterwangy, near the Upper Irwin River, specimens of which were exhibited by Mr. R. B. Pearson at Geraldton. The Government sent a sub-inspector of police to the locality, where he was successful in obtaining gold at various spots over an area of ten square miles of country. An old miner visited the scene of the find, and said that "with water he could make 15s. to 20s. per day, but at that time it was hot and dry, a veritable desert, no water, no shelter, not even a stick with which to make a fire." Mr. H. Y. L. Brown, Government Geologist, made in 1870 an inspection of the Peterwangy field, and while he found gold "much rounded and water-worn, the particles small, and in some cases hardly perceptible to the naked eye," said: "Judging by the absence of any clayslates, schists, and sandstones of a very early geological age, so characteristic of the gold-bearing country in Victoria, I am obliged to record my opinion that gold will not be found there in quantity, or over a wide extent of country." After a visit to the Mount Tallering district in 1871 he said: "With regard to the geological formation of the rocks met with . . . some were almost identical with the gold-bearing rocks of Victoria. Near Tallering, Mullewa, and Nancarron," he concluded, "there was a large extent of similar country in which gold might be looked for."

In a despatch to the Governor in 1870, the Earl of Kimberley, then Secretary of State for the colonies, waived all rights, so far as the Home Government was concerned, to minerals on Crown lands.

1871. Two prospectors sank two shafts at Peterwangy in the early part of 1871. In one they struck a quartz reef about 18in. wide, from the casing of which a few fine colours of gold were obtained.

1872. In 1872 specimens of quartz from Kelmscott, Newcastle, and Baylup were assayed at the Sydney Mint, and found to contain gold. The Rockingham Bay Mining Company, incorporated that year, obtained very encouraging prospects in their claim at the Serpentine.

In the same year, rich copper and lead deposits were found near Roebourne, and in 1873, 60 tons of copper ore were shipped from Cossack. A very rich copper vein was opened about 50 miles East of Roebourne in 1890. It more than paid expenses from the start, and in two years over 700 tons were shipped from there to England.

1873. In 1873 a party of 16 Ballarat miners were engaged to prospect and mine for precious metals. Their expenses were paid by the Government, and great results were anticipated, but nothing was realised from the venture. The Government also erected a quartz-crushing mill at Fremantle. The initial crushing was made in October, 1874, but in a short time the mill ceased working.

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A quartz reef was discovered at Kendenup, near Albany, in 1873, which, according to assays made in Melbourne, contained over 1oz. of gold to the ton. On the strength of this report, the Standard Gold-mining Company was organised, with a capital of £3,000. A battery was erected on the property, but after several crushings, with very discouraging results, the undertaking was finally abandoned.

1877. It was reported in 1877 that rich quartz reefs had been discovered —said to carry over 5oz. of gold to the ton—near Roebourne.

1880. In February, 1880, Mr. E. B. Beere, a small squatter and farmer residing near the Byeen Brook, in the Toodyay district, brought to the city of Perth a piece of ore which he presumed to be a specimen of copper. The specimen was given to a business firm in Perth, and was for many years used as a paper-weight. Then Mr. Lawrence, a well-known boatbuilder, secured it, and while in his possession Mr. R. Greaves and Mr. E. Paine examined it, and at once pronounced it to be gold. Greaves was given about 1lb. weight of the stone, and from it "he obtained 6oz. of gold, which he sold for £4 an ounce." Mr. Beere had told someone that where he had found the supposed copper specimen there was a large outcrop, with more of the stuff lying loosely around. Greaves and Paine first saw the specimen in 1886, and immediately went in search of the locality from whence it had come. They returned unsuccessful, but again with Mr. Anstey they took up the quest, and it is stated found gold on Mr. Glover's property at Bindoon. A third time Greaves, Paine, and another tried to locate Beere's supposed find, going over the Wongan and Wyening runs, formerly in possession of Beere. They reported finding gold at the Wongan Hills, but no sign of a rich reef or alluvial deposits.

1882. In 1882 Mr. A. McRae, while riding from Cossack to Roebourne, picked up a nugget of gold weighing 14oz.

In November of the same year, Mr. Phil. Saunders reported by telegram from Yam Creek, in South Australia, that he had "Found gold on head watershed of Ord River, not payable; believe payable gold exists, auriferous country extends north-west and south-east of Forrest's track." The Western Australian Government at once entered into negotiations with Mr. Saunders with the object of ascertaining if he would lead a party through the newly discovered Kimberley country, with the object of more thoroughly examining it for gold, but no definite arrangement was arrived at.

1883. In 1883 Mr. E. T. Hardman, at that time Government Geologist, first visited Kimberley, and on his return reported the existence of auriferous country on the western side of the Leopold Range.

1884. In 1884, after a personal examination of the supposed gold-bearing rocks in the neighbourhood of the Bunbury, Blackwood, and Margaret Rivers, in his report under date of 30th January, 1884, Mr. Hardman said: "The rocks of this large tract are true

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metamorphic rocks of many varieties; they contain numerous bands of slate, and many quartz veins, most of which take a North-West course so common in the auriferous veins of Victoria. Now metalliferous veins are so constantly met with in these rocks in all parts of the world, that I cannot believe Western Australia is the single exception, and I can only arrive at the conclusion that they have hitherto escaped notice for want of careful and systematic searching."

He then revisited the Kimberley district, and considered it "extremely likely that that part of the district occupied by the metamorphic rocks would eventually prove to be, in some degree at least, auriferous; it may be in payable quantity." He recommended that a search be made for gold in the section "between the Napier Range and Mount Broome, on the Leonard and Richenda Rivers, the most promising portions being where the principal slate country commences. In this section numerous quartz veins may be observed, varying in width from a few inches to 30 feet." He also expressed the opinion "that if gold existed at all in the Kimberley on the west side of the Leopold Range, it would be found somewhere in that locality."

In his final report, made after his return from the north, he said, "the gravel-beds along the banks of the Elvire, Panton, and Ord Rivers are often from 20 to 40 feet in thickness, and wherever prospected yielded good colours of gold, a fact which is easily understood when it is known that they are the *detritus* of the quartz bearing schists and slates to the west of the Albert Edward Range; these gravel beds sometimes extend to a distance of three or four miles on either side of the river." In several instances he found colours of gold at considerable distances from the quartz-bearing rocks from which only the gold could have been derived, which indicated that there were larger quantities of gold in the quartz veins and drifts overlying them. In conclusion "he hoped that the district would prove a success as regards payable gold; intending prospectors must, however, be prepared to expend and perhaps lose money, but the appearances were quite good enough to justify this risk." Shortly after the publication of Mr. Hardman's first report, steps were taken to organise and equip a party to prospect the Kimberley district, and at the session of the Legislative Council held in August, 1884, £1,000 was placed upon the Estimates "to be expended in prospecting for the discovery of a goldfield."

1885. Mr. Grant, in the Legislative Council on the 28th of August, 1885, moved that "to a party of gold diggers now organised in Perth to prospect the Kimberley district, be given the loan, or help of horses that are not in use by the survey party in that district in the summer months;" but while this question was being debated in the Chamber a party consisting of Messrs. Hall, Slattery, and others, miners from the Eastern colonies, had already arrived in the Nor'-West, and on the 30th August they left the Yeeda station on the Fitzroy River. They first found gold on one of the branches of the Elvire, where in a few days they took

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out 10 ounces. From thence they prospected the Margaret and Ord Rivers, finding good colours in almost every prospect hole.

The Legislative Council in June, 1886, was congratulated by *1886.* Governor Broome "on the discovery of an extensive goldfield of rich promise in the Kimberley District," and on the 16th of August at that session the first "Goldfields Mining Bill" was passed.

The question as to who was the first discoverer of the Kimberley goldfields came up before the Legislative Council. Mr. Carr-Boyd claimed to have discovered a rich reef and sent several cwt. of the stone to Melbourne before the Hall party appeared in the district; he applied to the Colonial Secretary to have his claim recognised to the reward offered for the discovery of a payable goldfield, but after examination the Government made an award of £500 to Hall, Slattery, and party.

The Kimberley Goldfield was proclaimed on the 20th of May, 1886; and Mr. C. D. Price was appointed Warden. Prospectors rushed in from all parts of Australia, and, by the 30th of June, there were probably from 1,500 to 2,000 men scattered over the auriferous area. During the year many rich reefs were discovered throughout the district, and several parties obtained enough gold from surface rock by the primitive dollying process to more than pay expenses. Mining companies were floated, and in November, 1887, machinery reached Hall's Creek for the Nicholas Mine, located on the Margaret line of reef. Up to the 30th June of that year, 72 quartz claims had been located and registered at the Warden's Office.

The Legislative Council, in 1886, placed upon the Estimates the sum of £300, "to provide the necessary expenses of a prospecting party to examine the reported gold-bearing country to the Eastward of Newcastle." Later a further sum of £300 was appropriated "for the purpose of giving assistance in the work of prospecting for gold in the neighbourhood of the Upper De Grey, Oakover, and Fortescue Rivers." It was suggested by the mover, "that Mr. McPhee be given the preference," as his name was well-known to all who had read the reports of the gold discoveries in the Kimberley district.

In 1887 Mr. Glass, at Moujakine, while digging a tank found a *1887.* good sized speck of gold; he sank several prospecting holes in the vicinity of the find, but without success. The discovery, however, led to the organisation of the "Settlers' Association," who, with Government aid, fitted out a party to prospect the district to the eastward of Newcastle and Northam. This party, under the leadership of Mr. Colreavy, penetrated the country as far east as the Yilgarn Hills, a distance of fully 200 miles; while he was not successful on the first trip, so highly was Colreavy impressed with the appearance of the country, that he immediately set out on a prospecting trip on his own account.

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While Colreavy was out on his second trip quite a sensation was caused by the return from Yilgarn of Mr. H. Anstey with rich specimens of gold quartz. This gentleman had gone in the same direction as Mr. Colreavy, intending to prospect still further to the eastward. After further prospecting at Anstey's discovery it was found that although the surface indications were good, the reef soon pinched out. Fortunately, just at this time Colreavy, who was prospecting in Golden Valley, ten miles further south, found a small reef which carried gold throughout the stone. This caused a rush, and several gold-bearing reefs were found. Prospecting was carried on still further south and east by Riseley and others—representing the Phœnix Company—who discovered several rich reefs 30 miles from the Golden Valley, at a place which they named "Southern Cross," from the fact of having made use of that constellation as a guide while travelling by night towards the site of the find.

Mr. W. J. Parker, with a party, found good indications in country some 40 miles South of Golden Valley, which he called Parker's Range.

1888. The discovery of tin at Greenbushes, in the year 1888, would seem to have been due to the researches of the late Mr. E. T. Hardman, a former Government Geologist. This gentleman, while engaged upon official duties in the Blackwood District, was accompanied by Mr. Stinton, to whom Mr. Hardman suggested the probable occurrence of tin-bearing deposits. Having this in mind, Mr. Stinton, in 1888, whilst out kangaroo-hunting, at Greenbushes, found a small quantity of stream tin in a gully near the Blackwood River, not far from the main road, about nine miles from Bridgetown and 52 miles from Bunbury. A large number of leases were at once taken up, but as the old regulations did not at the time contain any labour clauses, very little work was done. Mr. Stinton was subsequently, in 1891, awarded £250 by the Government.

Mr. H. P. Woodward, F.G.S., F.R.G.S., at that time Government Geologist, visited the Eastern fields in February, 1888, and expressed upon the whole a favourable opinion of the Yilgarn District. The Government awarded Mr. H. Anstey £500, and Messrs. Colreavy and Huggins £250 each for the discovery of the Yilgarn Goldfield.

The Yilgarn Goldfield was proclaimed on the 1st October, 1888. Mr. Alpin F. Thomson was appointed Acting-Warden, and was succeeded by Mr. J. M. Finnerty in May, 1889.

Two promising reefs—the Mallina and Pedawah—were discovered in 1888 at Mallina to the Eastward of Roebourne. Several other reefs showing free gold were soon after found in the vicinity. In July a rich alluvial find was made at Pilbara Creek, and in a short time a large amount of gold was taken from the gravel. Mr. A. Villars found a nugget weighing 127oz., and several were unearthed from 30oz. to 40oz. each.

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The Pilbara Goldfield was proclaimed on the 1st October, 1888. Mr. C. W. Nyulasy was appointed Warden. The Government awarded Messrs. J. H. Wells £500, N. W. Cooke £250, and H. & J. Withnell £100 for the discovery of the Pilbara Field.

Gold was discovered a few miles north of Cuddingwarra by a prospector named Burke, but it attracted little attention at the time. It was also reported that gold had been discovered in the Wongan Hills, about 60 miles north-east of Newcastle.

1889. Rich deposits of alluvial gold were discovered on the Ashburton River in 1889, a large quantity being taken out in a few months.

During the same year the Central, Central Extended, Fraser's, Fraser's South, and other companies were organised in Perth and Fremantle. Mills and condensers were erected at Southern Cross, and on the 25th November the Fraser's mill commenced crushing, followed in a short time by the mill of the Central Company. The Warden reported that 71 leases had been applied for during the year.

So many rich patches of alluvial were found in the Pilbara district, that quite a rush set in, the excitement extending to the Eastern colonies; syndicates were formed in Melbourne and other centres, and prospectors were soon scattered over the interior of Western Australia from Yilgarn to Kimberley. The Lady Carrington Mining Company was organised in Melbourne to work Eaton's Mallina Reef Claim. Early in the year a party of prospectors discovered alluvial gold on the Oakover River, and in a short time between 300ozs. and 400ozs. were gathered. In August a new field was discovered about 11 miles east of Roebourne by a Chinaman. The new find was called the Nickol field; it was not of great extent, and was situated so low and near the sea, that at high tide it was covered with water. At Nullagine many of the alluvial claims paid handsomely; at the 40-Mile over 700ozs. were taken out in a few days. During the year mills were erected by the Broken Reef Company at Pilbara, and the Alfred Argles Company at Mallina. Additional batteries were also put up at the Kimberley and Yilgarn fields.

1890. The Ashburton Goldfield was proclaimed on the 11th December, 1890, and in May following, Mr. Thomas Wheatley was appointed Warden.

1891. The Murchison Goldfield was brought into notice by Mr. H. P. Woodward, the Government Geologist of the day, who described the country lying between the great bend of the Murchison and Milly Milly as being of an auriferous character. In the month of August, 1891, Mr. J. F. Connolly reported the discovery of alluvial about 200 miles east of the coast; this report was subsequently confirmed by Mr. W. Douglas. For the discovery of this field the Government awarded to Messrs. Connolly and Douglas £500 and £100, respectively.* Before the end of September,

* It has been claimed that Messrs. McPherson and Peterkin were the discoverers the Nannine district field, and should have received the reward.

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between 300 and 400 men were scattered over this field, and some wonderful finds of alluvial gold were made. Nuggets were picked up ranging from 2ozs. to 40ozs.; in fact most of the gold was found either on the surface or at a very shallow depth.

The Murchison Goldfield—headquarters at Nannine—was proclaimed on the 24th September. Mr. W. A. G. Walter was appointed Warden. The Cue "field," covering a large extent of country, was discovered by Messrs. Cue and Fitzgerald; and the rich finds becoming known, it was not long before there were a number of men on the spot. The field proved exceptionally rich, and in a short time a large amount of gold was secured by "specking" and "dry-blowing." Rich gold-bearing reefs were found at various points throughout the district, notably at the "Island," in Lake Austin, where, in addition to rich quartz, a channel was found containing cement, from which for some time marvellous returns were obtained. The first discovery on the Yalgoo field was made in 1890, in the Nancarrong Hills, near the Yuin Station, where gold was found in a reef on a low range of hills five miles east of the station. From one place gold to the value of over £15,000 was dollied from the cap of the reef.

Messrs. Speakman and Ryan, in 1891, while on a prospecting trip north-east of Southern Cross, found good colours and gold-bearing quartz near what was afterwards known as Siberia.

Mr. Moir, while searching for grazing areas in 1889 or 1890, found a few colours of gold on the Dundas Hills. In 1892 he, with Mr. Stewart, organised a party, but they were not successful in finding gold in payable quantities. About the same time two or three other parties, attracted by the statement of Mr. Lindsay (the leader of the Elder exploring party in 1891), that he had crossed in his journey an auriferous belt between Fraser's Range and Southern Cross, set out for that section, and Messrs. Mawson, Kirkpatrick, Bromley, Mason, and others were fortunate enough to locate several promising reefs.

1892.

In the month of April, 1892, Messrs. Bayley and Ford, after selling the gold which they had secured at the Murchison, left Perth on a prospecting expedition. They proceeded to Mount Kenneth, about 250 miles to the north-east; here they lost their horses, and had to walk back to Newcastle, where they bought fresh ones, and again started with the intention of making for the Marring country, where gold had been found by Speakman the previous year; but they met "the fellows rushing back," who reported the place was very poor, and not worth spending any time in. After these discouraging reports Bayley and Ford headed for Southern Cross. Purchasing supplies enough to last seven or eight weeks, they started eastward on Hunt's old track—made in 1864-65—and after a tedious trip, when they were very near the now famous field, were forced to turn back to the Guardbine soak for water. After resting two days they started in a north-easterly direction. They found the country so boggy that their progress was very slow; presently they reached the native well—Coolgardie—where they camped

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Finding the place covered with grass they let the horses out to graze while they went specking across the flats. Here Ford picked up a half-ounce nugget, and before dinner time they found over 20ozs. of gold. During the next three or four weeks they secured by specking and dry-blowing over 200ozs. Their provisions giving out, they were forced to go back to Southern Cross for a fresh supply. They were careful, however, not to say anything about the discovery they had made, but hurried back, and on the first Sunday afternoon after their return, while fossicking about, discovered the reef which soon became known all over the mining world. That evening they picked up and dollied with a tomahawk from the cap of the reef over 500ozs. of gold, one slug weighing over 50ozs., and early the next morning they pegged out a prospecting area on the reef. Shortly after Messrs. Foster and Baker, who had tracked them from Southern Cross, appeared upon the scene, and in a short time they secured over 200ozs. Meantime Bayley quickly made his way back to Southern Cross, carrying 554ozs., which he exhibited to Warden Finnerty on the 17th of September, and applied for a lease of the discovery claim. The field was then declared open, and Bayley, on the 20th, again left Southern Cross for Coolgardie, not alone, but accompanied by a coach, by teams, and a host of horsemen, fully 150 in all, leaving Southern Cross almost deserted. The news quickly spread throughout the colony. The *West Australian* of 21st September said: "In Perth and Fremantle everyone seems to be either carrying tents, picks, shovels, and dishes, or otherwise preparing for the road." At York there was great excitement over the departure of over 200 eager gold-seekers; they travelled by coaches, teams, horses, camels, and on foot, all bound for the land of gold.

1893. Alluvial was discovered by Frost and party at Goongarrie (the 90-Mile) in May, 1893. About the same time gold was found at Lake Lefroy, "Mount Youle,"* and other districts.

Kalgoorlie (Hannan's) was discovered in June by Messrs. Flannigan and Hannan, who were on the road to Mount Youle with a party of about 150 men. They camped two days on or near the spot where the find was subsequently made, waiting for the teams which had gone back to Coolgardie for water; but rain falling, the party started on their way again, leaving Flannigan and Hannan behind. Flannigan, it appears, while looking for the horses, found a couple of nuggets, and induced Hannan to remain with him; in a few days they picked up over 100ozs., and on the 17th of June Hannan went back to Coolgardie and applied for a reward claim, when immediately a rush set in, and in a few days fully 500 men were on the ground. A large amount of alluvial gold was quickly taken out, and many rich reefs discovered.

Bardoc (the 45-Mile) was located in August by Messrs. Cashman and Lee, who in a short time secured over 1,000ozs.

* Supposed to be the present Mount Gledden.

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The Dundas goldfield was proclaimed on the 31st August, and Mr. H. P. Woodward, the Government Geologist, appointed temporary Warden.

Siberia was discovered by Messrs. Frost and Bonner in October, and in the stampede which ensued to the new finds, after they had applied for the reward claim, several lives were lost from heat and thirst; in fact, many started out on the long trip not half provided with food and water, who undoubtedly would have perished had it not been for the parties subsequently despatched to their relief.

A bonus was offered by the Government, on the 11th January, 1893, to any person or company sinking a shaft on any proclaimed goldfield, during the year, from a depth previously attained of not less than 100 feet, as follows:—From 100 to 200 feet £2 10s. per foot, and from 200 to 300 feet, £5 per foot. At the close of the year no less than 11 companies applied for the reward, six of them at Yilgarn, one at Coolgardie, and four on the Murchison. A battery was erected on the "Star of the East" mine, near Nannine, early in the year, and preparations were made for placing additional machinery on mines at Cue, Mount Magnet, and other points on the Murchison field. A number of large nuggets were found at the Top Well, one weighing 298ozs., and several over 100ozs. each were brought into Cue.

1894. In 1894 prospectors were scattered all over the Eastern goldfields, and many valuable discoveries were made. Messrs. Hall and Speakman discovered the Mount Jackson district. Rich alluvial was found at the Pinnacles in February, and in a short time over 1,000ozs. were sent in to Coolgardie; while an equal amount arrived from Billy Billy, 90 miles to the eastward.

The Yilgarn goldfield was subdivided on the 6th April into three fields, viz.:—Yilgarn, Coolgardie, and Dundas. Dr. V. Black was appointed Warden of the Yilgarn goldfield; Mr. J. M. Finnerty, of Coolgardie; and Mr. A. S. Hicks, of Dundas.

The Kanowna alluvial ground was discovered in 1894 by a digger known as "Old Tom," who took out some 40ozs.; the same ground was then worked by the Begg Brothers, who sank 3 feet and were fairly successful; then it was taken up as a reefing claim, which, after abandonment for 12 months or more, was early in the year 1897 registered by Messrs. Sim, Gresson, and Watt as an alluvial claim. The "lead" consisted of a deposit described as containing chiefly "red earth, ironstone, and iron grit," in a compact body about 3 feet deep, 2½ feet wide, and lying about 3 feet below the surface. The formation trended westward, and as it was traced along in a winding course, it gradually dipped deeper into the earth. At a distance of 100 feet from the point of discovery the cement was 12 feet below the surface, and far richer in gold, the takings reaching on one occasion to 39ozs. in a day. The success of Sim and Company becoming known, a rush set in, and in a short time a strip of country about a mile long was pegged off as alluvial claims.

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Bulong (I O U) was discovered in May by two hitherto unsuccessful prospectors, who were thinking of returning to Perth. One of them pointed out a gully near by where he had previously found colours; proceeding to the spot, in a short time they unearthed, among others, a 70oz. nugget. Within a week the gully was pegged out from end to end, and over 500 miners were at work.

The Londonderry find was made in June by a prospecting party, consisting of Messrs. Carter, Dawson, Mills, Gardiner, Elliott, and Huxley, who had been out many months without finding a colour, and were on their way back to Coolgardie; quite by accident rich quartz was picked up by two of the party, and after a brief search the outcrop of a reef was exposed, from which, during the first three or four days, they took out between 4,000 and 5,000ozs. One specimen, "Big Ben," was estimated to contain gold to the value of £3,500 or more. On the 23rd June they applied for the reward claim, and deposited in the bank at Coolgardie 4,280ozs. of gold.

The Eastern Railway, from Northam to Southern Cross, was taken over by the Government and opened for traffic on the 1st July. The Northern line, reaching out towards the Murchison fields, was completed as far as Mullewa and taken over on the 1st November.

The Wealth of Nations was discovered in July by Mr. J. G. Dunn, an old prospector, representing a syndicate of well-known West Australians. When only 28 miles from Coolgardie he found the outcrop of a reef. Upon breaking into the cap, the quartz appeared to be glittering with gold; one of the first pieces taken out contained fully 800ozs. In a few days he secured gold to the value of over £20,000. In an incredibly short time after the lease was applied for, hundreds of men were upon the spot and several rich finds were made, two nuggets being secured, weighing respectively 197ozs. and 147ozs.

The Norseman field was discovered in July by Mr. L. Sinclair.

The "Lady Shenton," at Menzies, was discovered in September by Messrs. Menzies and McDonald. On the outcrop they found many moss-covered specimens rich in gold, extending for more than 100 feet on the line of the reef.

On the 1st October the East Coolgardie goldfield was proclaimed, with headquarters at Kalgoorlie, Mr. M. H. Jephson being appointed Warden. Discoveries were made of valuable alluvial and reef claims during the year at the White Feather, Black Flag, Lake Lefroy, Broad Arrow, and Mount Margaret, on the Eastern fields; while at the same time the central fields were being opened up and mines developed at all points. Several rich discoveries were made. At Lake Darlôt over 2,000ozs. were dollied in a short time from the caps of the rich reefs, and at Lawlers and McCaffrey's rich alluvial rewarded the efforts of the prospectors.

The rapid development of the goldfields necessitated a change in the conduct of the office work at headquarters. On the first

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January, 1894, Mr. H. C. Prinsep had been appointed Under Secretary for Mines, and that department become a distinct branch of the Government Service, still, however, remaining under the supervision of the Commissioner of Crown Lands. In December the office of Minister of Mines was created, and the Hon. E. H. Wittenoom, M.L.C., was appointed to the position.

1895. It was reported in January, 1895, that over 2,500 diggers were dry-blowing in the vicinity of Kalgoorlie. In February a valuable discovery was made at Niagara by Messrs. Northmore and Doolette. The Yalgoo goldfield—formerly part of the Murchison field—was proclaimed on the 23rd January. Mr. P. L. Gibbons was appointed Warden. The East Murchison goldfield was proclaimed on the 28th June, with Mr. A. G. Clifton as Warden. North Coolgardie was declared a goldfield on the same day, and Mr. F. Gill received the appointment of Warden.

Early in 1895 the "Hands Across the Sea" Reef claim was discovered at Kunanalling (the 25-Mile). The Hayes Brothers brought into Kalgoorlie 300lb. of quartz, estimated to contain gold to the value of £3,000, from Kanowna. The Mount Catherine district was opened up about the same time, and later on in June there was a rush to the alluvial fields near Kunanalling. At the end of the year there were 11 batteries, one cyanide plant, and 12 other mills working in the Coolgardie district. At Cue there were 17 batteries, nine at Nannine, and two at Mount Magnet. Such was the rush for mining ground that at Kalgoorlie 700 leases were applied for in one month.

During the first half of the year 73 Western Australian Mining Companies were incorporated in London, capitalised at £7,743,000, not to mention the many companies which were organised and floated locally and in the Eastern colonies.

In 1895 a digger from Nullagine brought into Roebourne five small diamonds which he had found in the stamper boxes after a crushing. Mr. F. F. Groom, who visited this find, said: "The tracing of the conglomerate to the place where the rock was first formed would prove a very interesting study to a geologist, and might be found payable not only in working for diamonds, but for gold also, as these beds are gold yielding."

1896. The North-East Coolgardie goldfield was proclaimed on the 15th April, 1896. Mr. P. Fielding was appointed Warden. The railway from Southern Cross was taken over and formally opened by His Excellency Sir Gerard Smith on the 23rd of March, 1896, and the Kalgoorlie line was opened on the 8th September of the same year.

1897. Mr. F. T. Daniel, in the early part of September, 1897, discovered, about 25 miles north of Newcastle, gold in the Blackboy Hill district; up to the end of the year upwards of 60 claims were pegged out; samples of quartz assaying 7ozs. to the ton are said to have been taken from a trial shaft.

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In September, the Warden reported that 170 claims had been recorded on the "deep leads" of Kanowna, and that fully 70 were yielding payable gold.

On the 23rd of December the Mining on Private Property Act became law.

At Lake Way, on the 29th December, a digger named Martin unearthed a nugget (the Monarch) weighing 463oz., the largest yet found in the Colony.

For the purpose of stimulating the production of asbestos, a bonus was offered by the Government to any person who would export 50 tons of asbestos, at an export value of not less than £10 per ton. The total amount of bonus not to exceed £500.

1898. On the 20th January, 1898, the Government offered a reward of £500 to the person first discovering alluvial gold at a depth below 30 feet from the surface on any land situated not less than six miles from any known deep alluvial workings, giving the finder also the right to select four ordinary alluvial claims at the point of discovery; the reward to be paid as soon as 1,000 ounces of gold were obtained from the discovery.

With the view of furthering the mica industry, the Government, on the 28th March, offered a bonus to any person who should obtain, within three months from that date, from any district as defined in the proclamation setting forth these conditions, and export mica in a quantity of not less than two tons, which should realise at least 1s. 6d. per lb.; Ten shillings for every £1 sterling realised on sales at from 1s. 6d. to 10s. per lb.; and £1 for every £1 sterling realised on sales at upwards of 10s. per lb.

The Donnybrook district was discovered by Messrs. Bourke and Hunter in the latter part of 1898. Mr. T. Blatchford, Assistant Geologist, said: "Donnybrook is situated on the Bunbury to Bridgetown railway, and is 26 miles south-east of Bunbury and 143 miles from Fremantle by rail. The scene of the mining operations is some two miles to the south of the Donnybrook townsite, on a small branch of the Preston River, in the Blackwood Range. Gold was first discovered in the surface soil by a party searching for alluvial gold. Further investigations carried on with the prospecting dish eventually led to the discovery of auriferous quartz veins, from which most of the alluvial gold had orginally been shed. The country, which is extremely hilly and thickly timbered, is for the most part covered with ironstone gravel deposits. Besides these workings on reefs, several of the miners have given their attention to the finding of alluvial gold. Dishes of dirt taken from the surface of the hills will usually yield a trace of gold when washed, and in some places a fair result is obtained."

In December, "the rich alluvial finds at Kanowna were keeping not only the local batteries, but many of the Kalgoorlie, Boulder, and Northam stampers at work." Five distinct leads were worked

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for a considerable length of time, and yielded handsome returns, viz.: The North, the South, the Fitzroy, the Q.E.D., and Golden Valley; while other alluvial workings at Wilson's Gully, All Nations, Kangaroo Gully, Golden Cement, and Salvation Flat paid very well.

At Bulong paying alluvial claims were worked at the Melbourne United Gully, on the Margaret, the Oversight, and the Maggie leads; slugs and nuggets weighing up to 48oz. were taken out.

At Broad Arrow coarse gold was found in most of the gullies.

A number of miners were working on the cement leads at Paddington, in ground from 80 to 100 feet in depth.

At Sunday Gully, in the Mount Margaret district, good returns were obtained by the diggers.

At Coolgardie, in the latter part of the year 1898, alluvial gold was discovered about four miles from the town, on Block 48 of the Hampton Plains Estate, by an Italian named Armanesco, and, as a result, a number of miners were soon engaged all over the field in search of alluvial, with a fair degree of success.

At Mount Magnet good wash dirt was found at a depth of 25 feet, and coarse nuggets up to 18dwts. were obtained. In the Murchison goldfield, at Poverty Flat, slugs up to 80oz. in weight were found.

Tin was discovered in April, in several creeks to the East of Marble Bar, 75 tons being won in that year. This area, known as the Moolyella Tinfield, has since developed into a field of some importance.

Traces of *gold* had been found at Donnybrook by Mr. R. L. Hunter, in 1898; but in 1899 a rich reef was discovered in "Jackson's Claim," and as a consequence many leases were taken up, and the Donnybrook goldfield proclaimed on the 27th November.

1899.

Copper had previously been known to occur on the Phillips River; but in 1899 several gold reefs and copper lodes were opened up, and the Phillips River Mining District proclaimed on the 1st July.

The Anaconda *Copper* Mine, the most important in the State, was discovered in 1898, but first opened up in this year, resulting in the discovery of extensive deposits of copper ore. It is situated three miles South-West of Murrin Murrin.

Iron ore was first mined in the State in this year, 13,000 tons being raised at Clackline and elsewhere on the Darling Ranges for use at the Fremantle Smelting Works.

Cobalt ore was first discovered at Kanowna, in the North Lead.

Silver-lead ore and *silver-copper ore* were discovered in several parts of the Ashburton watershed. The deposits at Uaroo station were of most importance in this vicinity.

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Several large *alluvial nuggets* were discovered this year. The "Bobby Dazzler," the largest ever found in the State, 487oz. gross, 413oz. net, was discovered by Clive, at Sharks Gully, Pilbara goldfield. The "General Gordon," the second largest ever found in the State, 372oz. gross, 331oz. net, by McPhee Brothers, also at Sharks Gully. J. Simmonds' nugget of 168oz. at Mulgabbie, North-East Coolgardie. Also several others over 100oz. Merton's Reward mine was discovered in March, by E. Merton; 1,000 tons of the outcrop yielded 3,307oz. A considerable amount of mining is now done at "Mertondale," as the locality is named.

A *deep lead* was discovered at Paddington, which yielded a very large amount of gold, and gave employment to a great number of men. Some extremely rich surface shows were discovered at Mount Weld (Burtville), in the Mount Margaret goldfield.

Very rich *alluvial deposits* were found at Taurus and Hogan's Find, North-East Coolgardie, the latter yielding a number of nuggets of considerable size.

A large belt of *auriferous country* was discovered to the East of Marble Bar, Pilbara, embracing the 20-Mile, Sandy Creek, Mosquito, Elsie Creek, and Cooke's Creek.

Rich *gold* was discovered at Lallarookh, Pilbara.

1900. *Alluvial tin ore* was discovered on Cooglegong Creek, 45 miles South-West of Marble Bar.

Gold was discovered at Yundamindera and Mount Higgins (Mulwarrie), North Coolgardie; Wilgeena (Wilson's Find), Peak Hill; Ninghan, Yalgoo; Preston River, South-West; Boodalyerrie Creek, Pilbara; Wadgingarra, Yalgoo; Yellowdine, and Duladgin, Yilgarn.

Freestone of good quality for building purposes was discovered at Donnybrook, and several quarries opened up.

Large deposits of *rich ore* were discovered at some depth in the Great Fingall mine, Day Dawn, leading to an extensive development in that mine, and a revival generally throughout the district.

Gold was discovered at Carwell, Reedy's, and Weld Range, Murchison; also at Davyhurst, North Coolgardie.

A large *nugget* weighing 197oz. was discovered at Kurnalpi by William Eddy in October.

A rich *gold* find was made at Black Hills, North-East Coolgardie, 2,000oz. being taken out in a short time.

The Phillips River goldfield was proclaimed on 14th September.

1901. A new find of *gold* was made 15 miles from Kalgoorlie, and three miles South of Boorara.

The discovery of a *deep lead* was reported in the Princess Royal District, Dundas goldfield, in February.

Mr. H. P. Woodward, the consulting geologist, reported favourably on the Phillips River goldfield.

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In consequence of the reported rich discoveries of *silver, lead,* and *copper* at Uaroo, 84 miles from Onslow, the boundaries of the Ashburton goldfield were extended on the 14th October, 1901.

1902. The year 1902 marks an epoc hin the history of the gold mining industry with the completion of the Coolgardie Water Scheme.

The most important discovery of the year was that of *artesian water* in the Gascoyne District, a plentiful supply being struck in the Government bore at Pelican Hill, Carnarvon.

Large recent deposits of *diatomite* (infusorial earth) was discovered in the swamps and lakes of the Wanneroo District, and later in those of the Jandakot District.

Gold was first reported from Black Range (Nunngarra), in the East Murchison field.

1903. A *deep lead* was discovered at Norseman between the lake and the "Lady Mary" minein 1903. A new mining centre was also discovered about 38 miles east of Bulong; whilst upon the Pilbara goldfield several nice nuggets were discovered.

Alluvial and lode *tin* ores were discovered at Wodgina, Pilbara goldfield.

1904. Tellurides of *gold* reported from Mulgabbie (N.C.), causing a rush to this almost neglected centre.

Very rich veins of telluride ores of *gold* and *silver* located in the Hidden Secret Mine, at the north end of the Kalgoorlie field.

Precious opal was discovered at Coolgardie.

Detrital and lode *tantalum* ores discovered at Wodgina, these minerals subsequently proving to be of great commercial value.

2.—SALIENT GEOLOGICAL FEATURES.

(*By A. Gibb Maitland, Government Geologist.*)

INTRODUCTION.

This account of the salient geological features of Western Australia must be regarded more in the light of a statement of the present condition of our knowledge than a detailed description thereof, and should serve to show how much has yet to be learnt on the subject.

Certain very small portions of the State which are of economic importance have in late years received somewhat detailed investigation, but there are many portions which are as yet only imperfectly known, while by far the larger area of Western Australia has never yet been examined by any trained geologist, and many years must elapse before even the dominant geological features can be grasped.

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In the compilation of this account I have freely availed myself of the work of my predecessors and of those other workers to whom Western Australian geologists owe a debt of gratitude. As this article is to a large extent based upon the labours of previous official geologists, it is not out of place to give a succinct account of their observations.

Dr. F. von Sommer would appear to have been the first official geologist employed in the State. This gentleman travelled extensively during the years 1847 to 1857 throughout Western Australia. He geologically examined the Victoria, Toodyay, and York Districts, and extended his observations to the country lying between the latter and Mt. Barren, on the south coast. Neither the maps nor reports of this worker have ever been published, although three articles from his pen bearing upon the geology of the State appeared in the pages of current literature during the years 1848 to 1849.* After an interval of 21 years, during which much excellent geological work was accomplished by the Gregory Brothers, Mr. H. Y. L. Brown was appointed to the post of Government Geologist. This officer, during the years 1870-71, prepared three geological maps and issued 10 reports (now out of print), all of which have been laid under contribution in the preparation of this *résumé*. In 1882 Mr. E. T. Hardman, of the Geological Survey of Ireland, was appointed Government Geologist. His labours were chiefly confined to the Kimberley District, upon which he issued two voluminous reports illustrated with a series of maps and plates. Mr. Hardman's researches laid the foundations of our knowledge of the geology of the northern portion of Western Australia, and also led to the discovery of the Kimberley Goldfield. This officer examined the neighbourhood of Bunbury, Blackwood, etc., and investigated the vicinity of Perth with reference to the question of its water supply from subterranean sources. Mr. Hardman concluded that it was hopeless to expect an overflowing supply of water anywhere in the neighbourhood of the capital. This conclusion, though not borne out by recent trials, was the only one which could be legitimately arrived at so long as it was assumed that the water-carrying strata must be arranged in the form of one of those ideal basins, sections of which have done duty for many years in geological manuals. Recent observations have shown that this condition rarely obtains in Nature, and that in all the important artesian areas the porous beds are so arranged that there is only one side of a synclinal trough present. The late Rev. C. G. Nicolay contributed largely to our knowledge of the geology of the State, and was the founder of the Geological Museum in Fremantle, now merged into the Western Australian Museum. In 1887 Mr. H. P. Woodward was selected to fill the post of Government Geologist. Mr. Woodward, in the course of his official duties (1887-1895), travelled over the length and breadth of the State, and, with a small appropriation, published 21 voluminous reports and six geological maps.

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* *Vide* "Bibliography of the Geology of Western Australia." A. Gibb Maitland, Perth: By Authority, 1889.

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Archæan Rocks.

The oldest formation in Western Australia is that comprising those gneissic, granitoid, and schistose rocks, which cover such an enormous area of country, and form the floor upon which the newer strata have been laid down. To the whole of these metamorphic rocks observers have invariably assigned an Archæan Age; this, however, is more inferred than proved. There is only one instance on record, at the present time, upon which this classification may be considered to have been determined by palæontological evidence.

In the Kimberley District certain limestones, sandstones, quartzites, etc., have yielded Lower Cambrian fossils, viz., *Salterella Hardmani* and *Olenellus (?) Forresti*. These fossiliferous beds are considered, and may probably be, newer than the gneissic and schistose rocks in the vicinity. So far as observations have at present been carried, no actual junction has been noticed between the schists and the fossiliferous strata, and there is nothing already in the evidence available incompatible with the supposition that the talcose and mica schists and other associated rocks represent much more highly metamorphosed portions of the Lower Cambrian beds.

In the absence of direct stratigraphical or palæontological evidence, it is convenient, for descriptive purposes, to adhere to a purely lithological classification, and to separate the gneissic, granitoid, and schistose rocks from those in which metamorphism has not been carried sufficiently far to entirely obliterate their clastic character.

These Archæan rocks have been thus described by Mr. H. P. Woodward, formerly Government Geologist:—

This great group of rocks are more largely developed in this Colony than in any other portion of the world, outcropping as they do in all parts of the country; and where they are overlain by more modern formations these latter are rarely of any great thickness. This series is highly contorted, being folded into a number of parallel anticlinal and synclinal folds, striking north and south, and often presenting the appearance of a highly-inclined dip, which is either nearly vertical or trending to the eastward. These rocks are much broken and faulted by numerous diorite and granite dykes. They contain many quartz veins and iron lodes, and it is in this group of rocks that the principal auriferous deposits exist. This great series of rocks may be subdivided into three sections—the granites, the gneisses, and the schists, which, as a rule, run in parallel belts north and south, with a slight trend to the north-west.

The first, or western belt, extends from the Murchison River to the south coast, but is very little exposed, except in the Northampton District, and a little south of the Irwin River, where it is rich in copper, lead, and zinc lodes. It underlies the sandy coastal plains, outcropping here and there at the base of the Darling Range, forming a small range between the Capes Naturaliste and Leeuwin, and characterised throughout by lead, copper, and zinc lodes. The rocks of this belt are, for the most part, comparatively soft, consisting of clay slates (often kaolinised), quartzites, and schists, with dykes of diorite and granite, and veins of quartz containing lead, copper, zinc, iron pyrites, and ferruginous graphite.

The second belt extends northward from the south coast (forming the bold escarpment at the edge of the great plateau called the Darling Range) as far as the Murchison River. It then follows this river in a narrow belt in

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a north-easterly direction for about 200 miles, where it suddenly spreads out to the east and north-west from the Robinson Range to the Lyons River, disappearing beneath the magnesian limestone to the northward. In this belt the rocks are mostly hard and crystalline, consisting principally of gneiss and schist, with dykes of diorite, granite, and felstone, and veins of quartz. The latter (as well as the diorite) often contains large quantities of pyrites, most of which yield a little gold. Tin is also being worked at the Greenbushes Tinfield, the ore being derived from the disintegration of quartz-porphyry dykes, in which it is associated with tourmaline and titanic iron. Besides iron and manganese, large deposits of kaolin of a very fine quality occur, as well as veins containing mica and asbestos; but these latter are too much weathered at their outcrop to be of any value. Near Bridgetown a very large deposit of graphite has lately been opened up; it exists in the form of a bed between talcose schists, about 20 feet in thickness.

The third, or great granite belt, lies about 100 miles east from the West coast, and is about 100 miles in width, extending from the South coast to the Murchison River. It consists of a series of bold, bare, outcrops of gneiss or granite, often 100 feet in height, and covering several hundred acres in extent, rising from loamy flats. The rocks mostly outcrop in the depressions of the tableland, the higher portions of which are covered by sand plains. This belt is absolutely destitute of mineral veins, and it is due to this barrier that the rich goldfields to the eastward remained so long unprospected. These outcrops are made use of for the conservation of water in this dry portion of the colony, as they shed water like a house-roof, whilst around them there are many natural dams or basins filled with sand, which are either being cleaned out or wells are being sunk in them. The rocks of this belt consist entirely of gneiss and granite, much fissured and faulted, and traversed by numerous dykes of granite and diorite, whilst the main masses generally enclose fragments and masses of schistose and gneissic rock.

The fourth, or first auriferous belt, is situated immediately to the eastward of the granite belt, and is about 20 miles in width. It starts from the South coast at the Phillips River, extending northward in a narrow belt by the Ravensthorpe Range, Parker's Range, Southern Cross, Golden Valley, Mt. Jackson, Mt. Kenneth, Mt. Magnet, Austin's Lake to Cue. Thence it takes a slight bend to the north-east to Nannine and the Star of the East, where it strikes more to the north, and skirting round the heads of the Murchison and Gascoyne Rivers, it turns north-west and follows down the Ashburton Valley to its junction with the Henry, finally disappearing beneath the Palæozoic formation. The rocks of this belt consist mostly of hornblende, mica, or talc schists, of which the hornblende schists so closely resemble diorite that it is impossible to distinguish it in a broken specimen. The rocks of this belt are a good deal broken and faulted by granite and diorite dykes, and quartz lodes containing gold, iron, and copper. There are also some large magnesia lode-masses, rich in fine gold, which will probably prove to be serpentine at a depth. Many of the lodes also contain large quantities of chlorite.

The fifth, or second granite belt, is about the same width, and similar in every way to the first mentioned. It extends from the South coast, following the line of the first auriferous belt north, and, like it, dipping under the Palæozoic tableland of the Fortescue. Only a small portion makes its appearance on the northern side of the Yule River, near Pilbara, upon the North-West coast.

The sixth, or second auriferous belt, lies next, and at present its width is unknown, but it is certainly of considerable width in places, and has proved, wherever prospected, to be extremely rich in gold. It extends north from the Dundas Hills (where this formation first outcrops from below the sand plains) by Wagemulla,* Coolgardie, and Three Pinnacles, Ularring, Lake Carey, and following about the same line as the other belts,

* Now spelt "Widgemooltha."

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and turning with them to the north-west by the Nullagine, Marble Bar, Pilbara, Egina, and Mallina, upon the North-West coast. The rocks of this belt are generally very similar to those of the first auriferous belt, but the formation and lodes are a great deal more faulted and broken; however, to make up for this, they are the richest that have ever been discovered.

The hornblende rocks of this Colony are very remarkable in character, being met with most abundantly from north to south. They vary immensely in colour, structure, and external character, some, at first glance, having the appearance of clay slate; but on being fractured they exhibit a structure similar to diorite, whilst others again only contain green crystals of hornblende disseminated through a quartz matrix, or have a jade-like appearance, which latter variety are continually being mistaken for copper, nickel, or silver. With these rocks are associated the principal mineral deposits of the Colony—gold, tin, copper, antimony, lead, zinc, manganese, and iron.

Cambrian Rocks.

An undoubted Cambrian fauna has been discovered in the rocks of the Kimberley District. The fossils consist of *Salterella Hardmani* and *Olenellus* (?) *Forresti*, and are associated with certain limestones, sandstones, quartzites, clay slates, and sandy flags. Very little is known of these Cambrian rocks at present; their superficial area, however, would seem to be extensive, for they have already been proved to extend in a north-east and south-west direction from the Burt Range and for some distance to the southward of Mount Dockrell. No estimate has yet been made of the thickness of these the oldest fossiliferous beds yet found in the State. The strata have been folded in such a way that the principal axes of folding are north-west and south-east.

The Cambrian rocks of Kimberley are of considerable economic importance, in that they form the matrices of those auriferous quartz reefs which have already been exploited.

Up to the end of 1903, 16,275ozs. of gold were returned from this district. Although these figures include a considerable quantity of alluvial gold, it is a natural assumption that this was originally derived from the disintegration of the ore deposits in the Cambrian beds.

What are now believed to be strata of Cambrian Age are the Nullagine Beds, which cover such an extensive area of country in the Pilbara Goldfield. This formation, the actual base of which is rarely seen, is of importance by reason of the occurrence of gold in the basal conglomerate at Nullagine. The strata of the Nullagine series consist of a series of sandstones, grits, conglomerates, limestones, which are often magnesian, together with a series of interbedded volcanic rocks. The basal members of the series, as developed in the vicinity of Nullagine, rest upon a very uneven surface, have yielded 1,730ozs. of gold by the milling of 3,433 tons of conglomerate. This auriferous conglomerate is of sedimentary origin, and is composed of rounded and sub-angular boulders and pebbles of the underlying rocks. The auriferous portions of the conglomerate are characterised by the presence of abundant iron pyrites and its oxidation products; it is, however, only in the

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oxidised zone that any mining has up to the present been carried out. The deposit very closely resembles the "banket" beds of South Africa. No fossils have been found in the Nullagine Beds.

Silurian Rocks.

The occurrence of Silurian rocks in Western Australia has been more inferred than proved.

Writing in 1861, Mr. F. J. Gregory described certain rocks of the Mount Barren Range as being probably of Silurian Age, though the evidence upon which this deduction is based is not given.

The rocks of the Stirling Range, which lies about 50 miles north of Albany, have been claimed as Silurian. The beds consist of quartzites, sandstones, and shales, the whole being traversed by quartz veins. The beds are highly folded, contorted, and faulted in places. According to the researches of Mr. H. P. Woodward, the rocks at the western end of the Range, near Mondinup, have been thrown into three sharp anticlinal and synclinal folds, in a distance north and south of about 10 miles, by a lateral compression from the south :—

This series of rocks, although covering a considerable area, are plicated in such a manner that two or three beds form the entire range, rising abruptly from beneath the plain to the northward, and dipping under it again to the southward . . . . . *

The strata chiefly developed in the Leopold and Mueller Ranges of Kimberley have been provisionally classed as Silurian, more, however, on account of their lithological character than on any stratigraphical or palæontological evidence.

The rocks composing the Leopold and Mueller Ranges are of various textures. They are sometimes pure crystalline quartzites, and sometimes fine-grained but highly indurated grits, having an almost vitrified appearance. Coarse pea-grits and quartzose conglomerates are everywhere met with, but, as a rule, the whole mass shows indication of extreme metamorphic action. Interbedded with these, however, we meet with beds of soft sandstones and purple slates, which have apparently suffered no alteration whatever. †

Much detailed field work is, however, required before the occurrence of undoubted Silurian rocks in Western Australia can be considered to have been definitely proved.

Devonian Rocks.

The Devonian rocks of Kimberley have been described by Mr. E. T. Hardman as consisting of hard grits, conglomerates, indurated limestones and shales. They are seen to rest uncomformably upon a series of schists and slates which have been claimed as being of Lower Silurian Age; they are covered by basaltic lavas, which are in turn partly overlaid by undoubted Carboniferous rocks. The Devonian strata occupy an area of about 2,000 square miles, and calculations have shown that their thickness is about 10,000 feet.

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* "The country between Broomehill and the Dundas Hills, and the Mines in that neighbourhood." H. P. Woodward. *Ad interim* report on the Department of Mines for the half-year ending 30th June, 1894. Perth: By Authority: 1894, p. 14.

† On the Geology of the Kimberley District. E. T. Hardman, Perth: By Authority: 1885, p. 23.

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The Kimberley Devonian rocks have yielded the following fossils:—*Actinostroma clathratum, Stromatoporella Eifeliensis, Pachypora tumida, Cyathophyllum virgatum, Cyathophyllum depressum, Aulopora repens, Spiroribis omphaloides, Spirifera, Atrypa reticularis, Rhynchonella pugnus, Rhynchonella cuboides, Orthoceras,* and *Goniatites.*

Associated with these sedimentary beds are contemporaneous basalts, dolerites, anamesites, volcanic breccias, and ashes. These volcanic rocks extend over a large area of country, and also attain a considerable thickness, having been estimated to reach from 1,000 to 1,100 feet. No undoubted volcanic focii have been observed in the district over which these lavas extend, though certain peaks and cones have been mentioned by Mr. Hardman as being likely to prove on detailed examination to be ancient volcanic vents.

Carboniferous Rocks.

The Carboniferous rocks of Western Australia cover a very large area of country, and seem to be particularly well developed in the Kimberley District. The formation is divided into an Upper or Sandy, and a Lower or Calcareous series.

The occurrence of the Carboniferous formation would seem to have first been published by Sir George (then Lieut.) Grey in the year 1841, in his journals of the two Expeditions of Discovery in North-Western and Western Australia during the years 1837-39. Dr. F. von Sommer, the first Government Geologist of the State, traced the Carboniferous beds in 1848, from the heads of the Irwin River to those of the Moore, for a distance of 160 miles.

There are three distinct districts in which fossiliferous Carboniferous rocks are known in the State—viz., Kimberley, the Gascoyne, and the Irwin River district.

The Kimberley Beds.—The Carboniferous rocks of Kimberley are represented by widespread deposits of sandstones, grits, and conglomerates, all containing bands and nodules of hematite or ironstone, as well as magnesian and other limestones.

The Upper or Sandy series, according to Mr. E. T. Hardman,* by whom these beds were first described—

> Extends from Roebuck Bay on the west, to the Napier and Oscar Ranges on the east, and is recognised alike on the north side of Stokes Bay, and in the St. George Ranges, 100 miles to the south . . . . . It may reasonably be asserted that this sandstone formation is considerably over 1,000 feet in thickness, for the Grant Ranges have an elevation of over 900 feet above the plain, while the nearest limestone is 60 or 70 miles distant; and probably its continuation lies (even assuming a moderate angle by dips) many hundreds of feet below the sandstones of the Grant Range and Mount Anderson. The sandstones here dip at high angles, so that the thickness of strata is considerably more than the actual height of the hills above the plain. . . . . Besides those of the Fitzroy, it occupies a considerable portion of the Haughton Ranges, which extend for some 35 or 40 miles. It is next seen in the Ord district, along the north-west of which it stretches for over 50 miles in length, with a minimum width of about 20. Here it rises into high ranges, of which Dixon Range and the hills, marked J39, are prominent

* The Geology of the Kimberley District, Western Australia. Perth: By Authority: 1885.

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examples. Hardman Range, to the south, is also composed of it. Further north the strip of country extending from Mount Elder along the Negri to the south of Mount Panton is mainly composed of this formation, although occasionally subordinate bands of limestone are met with in these rocks.

Of the Carboniferous Limestone (Lower) Series, the same author writes:—

This formation extends in a wavy line from Alexander Creek through the Napier Range, Oscar Range, Geikie Range, etc., from north-west to south-east, as far as the Margaret River, ending within a few miles of the Leopold Range. In this direction it is at its widest, as its breadth may be estimated from the various outcrops and ranges above the plains at 30 miles. It gradually narrows northwards, and at Napier Range is not more than seven miles wide; this includes the portion hidden beneath alluvium, etc.; but the general character of the limestone is the same throughout. It is high coloured, compact, brittle, splintery, more or less magnesian limestone. In colour, it varies from light grey to flesh colour, and sometimes pink. For the most part it is massively bedded, and it is not always easy to discern the direction of the bedding, as it is cut through by numerous joint lines, and often coated with stalagmite. The general appearance it presents is that of a very rugged vertically-bedded rock, in consequence of these joints.

On examination, however, it is seen that the rock dips at a very moderate angle, varying from 5° to 25°, the direction of the dip being usually at right angles to the trend of the hills. The limestone is interbedded with many thick layers of shale and thin arenaceous limestone; but these only occur in the lower beds, at the base of the hills.

Further to the east, the Carboniferous limestone appears in great force in the Rough Range, and extends to the south-east towards Haughton Range, a distance of nearly 30 miles. The extent of the limestone laterally, that is to the south-west, is not known, but in many places it is seen for six or eight miles; and south-west of Mount Huxley it stretches from its eastern edge, near J8, for nearly 20 miles in that direction. The limestone crops up at intervals between this range and Mount Pierre to the northward, and is seen in various parts of the River Margaret, extending in rather high hills on the north of that river, both to the east and west (Hull Range, Mount Kranso, etc.).

The Carboniferous Limestone Series for the localities above described

Consist in great part of rather massively bedded, light grey and sometimes flesh-coloured limestone, often magnesian, but are interbedded with thin, flaggy, earthy, and sometimes sandy limestone. But these chiefly occur among the lower beds, and are often interstratified with dark gray sandy shales. The valley of the Margaret is mainly composed of thin, flaggy, hard limestone (which gives a bell-like sound when struck with the hammer), earthy fetid limestones and shales, with nodular limestone bands.

From the last-mentioned locality no Carboniferous Limestone makes its appearance for a distance of about 120 miles.

A short way below the junction of the Panton and Elvire Rivers limestone again makes its appearance, and occupies a wide area, extending as far north-easterly as for several miles beyond the Negri, in all about 75 miles; while in width it averages from 20 to 30 miles. This portion of the limestone country rises in a succession of low and almost imperceptible terraces into high tablelands. One of these extends to the east of the Ord near the cattle station, and another to the north and east of the Negri River, where it is capped by Mount Panton. The Ord limestones are for the greater part hard and flaggy, rarely massive, usually grey in colour, sometimes sandy or magnesian, and seldom fossiliferous. In many parts of

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the district they are interbedded with red shales, marls, and sandstones, the former of which contain occasionally layers of gypsum, together with traces of rock salt.

The Carboniferous beds of Kimberley have yielded the following fossils:—*Lepidodendron*, sp.; *Stigmaria*, sp.; *Stromatopora concentrica (?)*; *Stromatopora placenta*, sp.; *Pachypora tumida*; *Zaphrentis*, sp.; *Syringopora*, sp.; *Actinocrinus*, sp.; *Platycrinus*, sp.; *Poteriocrinus crassus*, Miller; *Pentremites*, sp.; *Serpula*; *Spirobis*, sp.; *Fenestella plebeia (antiqua)*, McCoy; *Productus giganteus*; *Productus longispinus*; *Productus semireticulatus*; *Chonetes*, sp.; *Chonetes Hardrensis*; *Discina*; *Orthis resupinata*; *Strophalosia Clarkei*, Eth. fils.; *Rhynchonella pugnus*; *Rhynchonella pleurodon*; *Rhynchonella cuboides*: *Orthotetes crenistria*, Phillips; *Streptorhynchus crenistria*; *Terebratula hastata (?)*; *Terebratula sacculus (?)*; *Pleurotomaria*, sp.; *Toxonema*, small sp.; *Natica*, sp.; *Ceriopora*, sp.; *Chaetetes tumidus*; *Stenopora Tasmaniensis*; *Cyathophyllum*, sp.; *Cyathophyllum virgatum*; *Cyathophyllum depressum*; *Lithodendron affine*.

The Gascoyne Beds.—The strata of the Gascoyne River consist of a series of crystalline limestones, full of corals, dipping at an angle of about 10 degrees to the Westward. Beneath these are shales, which yield Lower Carboniferous fossils. Near the base of the series is a boulder conglomerate of glacial origin, resting upon clay slates or shales. The boulders in the conglomerate are of crystalline rocks, and give strong evidence of having been subjected to ice action.*

The following is a list of fossils from the Gascoyne River beds:—*Pachypora tumida*, Hinde; *Zaphrentis*, sp.; *Amplexus pustulosus*, Hudl.; *Amplexus nodulosus*, Phil.; *Syringopora reticulata*, Goldf. var. *patula*; *Stenopora Tasmaniensis*, Lons.; *Cyathocrinus*, sp.; *Poteriocrinus crassus*, Miller; *Fenestella plebeia (antiqua)*, McCoy; *Polypora Australis*, Hinde; *Protoretepora ampla*, Lons.; *Rhombopora tenuis*, Hinde; *Evactinopora crucialis*, Hudl.; *Edestus Davisii*, H. Woodward; *Aviculopecten Illawarensis*, Morris; *Aviculopecten limaeformis*, Morris; *Athyris Roysii*, Leveille; *Athyris Macleayana*, Eth. fils.; *Spirifer striatus*, Martin; *Spirifer* cf. *crassus*, Koninck; *Spirifer vespertilio*, G. Sow.; *Spirifer* cf. *convolutus*, Phil.; *Spirifer Kimberleyensis*, Foord; *Spirifer lata*, McCoy; *Spirifer Hardmani*, Foord; *Spirifer Musakheylensis*, Dav. var. *Australis*; *Syringothyris exsuperans*, de Kon.

The Irwin River Beds.—The existence of the Carboniferous rocks on the Irwin River would seem to have first been noted by Mr. Surveyor Gregory some time during the year 1846. Dr. F. von Sommer, then Government Geologist, examined and reported on the scene of Gregory's discovery, and traced the formation from the head of the Irwin to the Moore River, a distance of about 160 miles.

The area was mapped, in 1895, by Mr. H. P. Woodward, who at that time occupied the post of Government Geologist. This gentleman reports that the Carboniferous rocks extend

* Annual Progress Report of the Geological Survey for the year 1900, pp. 26-28. Perth: By Authority: 1901.

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From Mingenew in an easterly direction, covering an area of about 20 square miles, its greatest length from north to south, from Badgeree Pool upon the north branch of Mount Scratch, being about 30 miles, whilst the greatest width, from Mingenew to Narandagy, upon the Lockyer River, is about 17 miles. To the north-west this area is bounded by the high sandy tableland which extends away to the northward as far as the Greenough River. The south is bounded for the most part by the low outcrops of metamorphic rock, which contains many copper lodes; to the eastward by the bold escarpment of crystalline rocks, flanked by horizontally-bedded Tertiary sandstones, which often present towards the plains vertical cliff faces of as much as 200 feet, particularly where streams have cut deep channels through them; whilst to the westward it is bounded by more high sandy plains, which extend as far as the coast.

The Carboniferous rocks of the Irwin River have yielded the following fossils:—*Pleurophyllum Australe*, Hinde; *Pleurophyllum sulcatum*, Hinde; *Fenestella*, sp.; *Productus tenuistriatus*, Vernueil; *Productus subquadratus*, Morris; *Productus undatus*, Defrance; *Chonetes Pratti*, Dav.; *Spirifer Musakheylensis*, Dav. var. *Australis*; *Syringothyris exsuperans*, Koninck; *Reticularia lineata*, Martin; *Reticularia crebristria*, Morris; *Orthotetes crenistria*, Phil.; *Pachydomus carinatus*, Morris; *Aviculopecten*, sp.; *Modiola*, sp.; *Edmondia*, sp.; *Sanguinolites*, sp.; *Bellerophon decussatus* (?), Flem.; *Orthoceras*, sp.; *Discites*, sp.

Mesozoic Rocks.

The existence of rocks containing a secondary fauna would seem to have been first made known in the year 1861 by Mr. F. T. Gregory, in a paper communicated to the Geological Society of London by Sir Roderick Murchison. Gregory says these beds

Are almost exclusively siliceous in character, containing only a few beds of chalk of very inferior quality. They abound, however, more in fossils than the Carboniferous do, and with the exception of the recent coast limestone, more so than any other formation. Flints are rarely found in these. The bed of the Greenough River is the best spot for procuring specimens, although a few are found in the Chalk Hills near Gingin (spines of Echinoderms, etc.).

Writing in 1863, Charles Moore observes that the bulk of the Mesozoic fossils from Western Australia are of Jurassic Age, but in 1870, in a paper read before the Geological Society (of London), he expresses the opinion, based upon fossil evidence, that Cretaceous rocks occur in addition to those of Jurassic Age. Since that date, however, very few sectional details have been given of the Mesozoic rocks of the State, although a fair collection of fossils has been made. These beds have been studied in the field by Mr. H. Y. L. Brown, who thus describes the strata, which he claims to be of Oolitic Age:—*

The character of the strata belonging to this period may be described as follows:—Beds of highly ferruginous claystone or shale, sandstones, grits, conglomerates, clays, and limestone, placed in horizontal layers upon the older rocks, which originally they must have almost entirely covered, but have since been cut into and denuded to a great extent from off them, in such manner as to leave tablelands, isolated tablehills, and peaks with steep escarpments and slopes. Their average elevation is about 600 feet above sea-level. The surface of this formation is generally coated with a deposit

* General Report on a Geological Exploration of that portion of the Colony of Western Australia lying Southward of the Murchison River and Westward of Esperance Bay. Perth: By Authority: 1873, pp. 11-14.

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of sand, arising from the weathering of the sandstones, the larger areas being known by the name of sand plains. There are two principal areas occupied by this formation. The first, which varies in width from 10 to 30 miles, extends from the neighbourhood of Gingin and Yatheroo to the Murchison, and probably a long distance further northward, in a line more or less parallel to the coast. Proceeding eastward, it thins out and only exists there as outliers and cappings on the hills. Its average thickness, where best developed, is some 400 feet. The second area commences near Cape Riche, and stretches in a north-east direction beyond the Phillips River, thinning out eastward to mere cappings on the hills.

The uppermost beds in the first-named area are generally more ferruginous than the lower, and consist of highly ferruginous concretionary claystone, shale, and grit.

The great denudation which has operated since the close of this period has removed a great portion of the rocks, leaving the remainder as undulating plateaux and flat-topped hills, at the bases of which the older rocks outcrop. As a rule, these strata are horizontal, although in some cases a slight undulating dip is perceptible. The interstratified beds of white, yellow, and sometimes ferruginous limestone, attaining the thickness of 30 feet, which occur chiefly in the neighbourhood of Champion Bay, do not seem to be persistent, but are found, as it were, in patches, which gradually thin out.

As the limestone composing them is made up of shells, which in some cases have consolidated into a solid rock, in others have retained their original form, it seems most probable that the accumulation of shells in hollows, in ancient sea-beds, is the cause of their now being found in isolated areas. The most common fossils found included species belonging to the genera *Ammonitidæ*, *Belemnitidæ*, *Ostreidæ*, *Pectenidæ*, *Trigonidæ*, *Rhynchonellidæ*, etc. These fossils are generally found in the limestone, whole masses of rock being composed of them; they are also found in the hard ferruginous shale and sandstone, in which case they have been converted into oxide of iron. In a paper published in the proceedings of the Geological Society, the author. Mr. C. Moore, considers the fossils from these beds to represent the fossil fauna of the Lias and the Lower Oolitic formations of England.

The whole chalky limestone of Gingin, Yatheroo, and Dandarragan, which outcrops from beneath the sandy soil of these localities in patches, most likely is also of Mesozoic Age.

As yet, owing to the surface accumulations of sand, etc., which hide it from view, no sections are to be seen which show whether it over or underlies the ferruginous rocks of the district. At different spots in the Darling Range, etc., beds of ferruginous grit, claystone, and conglomerate exist, together with beds of unconsolidated sand, which may belong to this formation. Between Brookhampton and the Upper Blackwood Bridge, near Coverley's, and elsewhere along the road, on the tops and slopes of the moderately steep ranges which occur there, there are deposits of soft earthy claystone and ironstone, containing perfectly polished boulders of reddish sandstone, grit, and quartzite, varying in weight from a few ounces to 50 pounds, and of more or less spherical and elliptical shapes.

It is difficult to imagine how these boulders, which have evidently (judging by their waterworn condition, and the absence of any similar rocks *in situ* in the district) been transported a considerable distance, and now occupy the tops of ranges, could have been placed in their present conditions except by glacial action, if such were possible in this latitude. The outside of the pebbles and boulders are, whenever the rock is hard enough, smoothly polished; but, as far as I am aware, there are no striæ or scratches on them.

The second principal area of this formation, which embraces the country extending from near Cape Riche to beyond the Phillips River, consists of a series of horizontal sandstones, grits, and conglomerates, capped

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generally by the usual ferruginous claystones, the whole thinning out on to the granite along its northern boundary at a level of from 600 to 700 feet above the sea, and forming level plains and table hills, with steep escarpments along the Gardiner, Fitzgerald, Hamersley, Phillips, and Jerdicart Rivers. To the southward and eastward the formation, which attains a thickness of some 300 or 400 feet, rises on the slaty rocks of the Mount Barren and Jerdicart country. In lithological and stratigraphical character and position they are almost precisely similar to the same formation in the more northern parts of the Colony. White marly saliferous sandstones, ferruginous grits and claystones, conglomerate reddish sandstones, etc., are the principal rocks met with. Perfect specimens of fossil sponges are frequent in some of the caves which occur along the escarpments, hanging from the roof and sides, where the rock has weathered away; worm casts are also abundant. Mainbenup, near Esperance Bay, is the farthest point eastward where I have observed the formation. At Cape Riche beds of white and mottled sandstone, overlying granite, form low but steep cliffs along the shore of the bay.

Since the above was written the Mesozoic beds have received further attention, and our knowledge in connection with them has been materially increased. Boring operations have been carried out in these beds in the vicinity of Geraldton, where the strata have been proved to consist chiefly of sandstones, etc., which attain a thickness of at least 1,100 feet.

In the neighbourhood of Perth a great many bores have been put down in the search for artesian water, and a series of fossils obtained which, however, yet require critical examination. These have been submitted to Mr. R. Etheridge, jun., of the Australian Museum, Sydney, and Palæontologist to the Geological Survey of New South Wales, who writes * :—

That they trend to the opinion that the strata are either Triassic Coal Measures or Lower Cretaceous. From the nature and general appearance of the matrix of the fossils, I incline to the belief that the beds are really of Lower Cretaceous age rather than Triassic.

It is possible that to the former horizon the Coal Measures of the Collie River may belong.

The following fossils have been obtained from the Mesozoic Rocks of this State:—*Cristellaria cultrata*, Montfort, var. *radiata*, Moore; *Rhynchonella variabilis*, Schloth; *Avicula Munsteri*, Golds.; *Avicula echinata*, Sow.; *Avicula inæquivalris*, Sow.; *Lima proboscidea*, Sow.; *Lima punctata*, Sow.; *Ostrea Marshii*, Sow.; *Pecten cinctus*, Sow.; *Pecten calvus*, Munster; *Pecten Greenoughiensis*, Moore; *Astarte Cliftoni*, Moore; *Astarte apicalis*, Moore; *Cucullæa oblonga*, Sow.; *Cucullæa inflata*, Moore; *Cucullæa semistrata*, Moore; *Cardium*, sp.; *Cypricardia*, sp.; *Gresslya domaciformis*, Ag.; *Isocardia*, sp.; *Myacites liassiamis*, Quenst.; *Myacites Sanfordii*, Moore; *Tancredia*, sp.; *Trigonia Moorei*, Lycett; *Pholadomya ovulum*, L. Agass.; *Teredo Australis*, Moore; *Unicardium*, sp.; *Amberleya*, sp.; *Cerithium Greenoughiensis*, Moore; *Eulima (?)*, sp.; *Phasianella*, sp.; *Trochus*, sp.; *Turbo Australis*, Moore; *Turbo laevigatus*, Sow.; *Rissoina Australis*, Moore; *Belemnites*, sp.; *Belemnites canaliculatus*, Schloth;

* 9th March, 1899.

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Nautilus perornatus, Crick; *Nautilus sinuatus*, Clarke; *Ammonites (Dorsetensia) Clarkei*, Crick; *Ammonites (Stephanoceras) Australe*, Crick; *Ammonites (Sphaeroceras ?) Woodwardi*, Crick; *Ammonites (Sphaeroceras) semiornatus*, Crick; *Ammonites (Perisphinctes) Championensis*, Crick; *Ammonites (Perisphinctes) robigonosus*; *Ammonites Aalensis*, var. *Moorei*, Lycett; *Ammonites Walcottii*, Sow.

Cainozoic Rocks.

The Cainozoic rocks of the State occupy a very extensive area. They are thus described by Mr. H. P. Woodward:—

Eocene.

Coralline and Chalky Limestones with Flints.—The beds extend the whole length of the Great Australian Bight, and for 150 miles inland. They present a bold vertical face, of great height to the sea, evidently marking the line of a fault.

Coralline Limestones.—These form the lower beds of the coast limestone, and contain a great many fossils of Eocene Age, some of which were sent to England a few years ago to be described. The beds at Shark Bay and on the islands there are probably of the same age.

The Calcareous and Ferruginous Sandstones, Grits, and Conglomerates.—These beds are met with between the limestone hills, and the ranges probably belong to this Tertiary Series, as well as the ferruginous conglomerates which rest uncomformably upon the Cretaceous rocks to the southward of Champion Bay.

Pliocene.

"Pindan"—Cracked Plains.—These large sandy plains are greatly developed on either side of the Fitzroy River, and stretch far away to the southward, where they form Warburton's Great Sandy Desert. On the Ord River there are also some small stretches of country of this character, but nowhere of any very great extent. Owing to its porous nature, these plains are waterless in spite of the heavy rainfall; nevertheless, as a rule, they are covered with abundance of vegetation.

Sand Plains.—These form one of the characteristic features of Western Australia, extending as they do from one end of the colony to the other. The great sand plains of the interior are often 20 or 30 miles across, but they contain in places a good deal of the clay and iron which cement the grains of sand together, so that, there being a fair rainfall, they are covered with hardy vegetation which, during the two spring months, is perfectly gorgeous with flowers, and they form good summer grazing ground. These sand plains mostly appear to overlie the desert sandstone formation which forms the tableland of the interior of Australia.

Ferruginous Sandstones and Variegated Clays.—Plant remains are met with in these beds on the lower courses of the Gascoyne River, also at the Nullagine; and similar rocks, without the plant remains, cap the low ranges in many places throughout the Colony. They are probably the Upper Tertiary Age, although they may be still more recent. Beds, probably of this age, containing large quantities of fossilwood, and beds of brown coal, are also met with below the coastal sand plains of the south.

Pleistocene.

Ancient river gravels and lake basins are found in several places in the ranges, and are similar in character to the deep leads of the Eastern colonies which proved so rich in gold. They consist of pipeclay, ferruginous sands, gravel conglomerate, and mottled clay, and it is reported that

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Diprotodon bones have been found in one of these near Bridgetown, where these deposits are largely developed, and are now being worked for stream tin.

Ancient river gravels are met with on the Nullagine and Ashburton goldfields, but, as a rule, they are not common in these districts.

Lower Estuarine Deposits.—These beds occur as far inland as Perth, where, in deepening the river channel, large quantities of oyster and other shells are met with, proving beyond a doubt that the Swan was formerly a much larger arm of the sea than it is now. The oysters must have been exterminated by the silting up of the mouth of the river, which prevented the influx of salt water, keeping it fresh or brackish for a large part of the year. The deep holes in the bed of the Swan, to the west of Perth, probably owe their existence to the collapse of caverns eroded in the limestone which forms the bed of the river, by a subterranean flow of water containing carbonic acid.

Shelly Limestones and Sandstones.—These occur all along the south-western coast, and contain fossils very similar to the living forms, upon which in many cases the nacre of the shell is still preserved.

The shelly limestones and sandstones of Shark Bay and those met with here and there along the coast, as far north as North-West Cape, probably also belong to this series.

RECENT.

Alluvium of Lake Basins.—Throughout the interior there is a series of what are called lakes, which are in reality nothing more than large salt flats, boggy marshes, or clay pans, almost on a dead level, that drain one into the other, and eventually, if the season has been wet enough, discharge themselves into the upper course of some river; but this rarely happens, owing to the enormous surface they present for evaporation. One result of this is that these large flats, nearly every year, receive a fine covering of clay, upon which the salts contained in the water crystallise out, to be redissolved and added to from time to time, till in some places, which may be a little lower than the rest, or where some obstruction occurs to check the flow of the water, very large deposits of salt accumulate. These lakes are surrounded by red clay flats, which also contain a great deal of salt; in fact, the whole interior of the Colony is salt, since the salts leached from the rocks are not carried away to the clay, to be redistributed over the surface of the country by the wind.

Salt and Gypsum Deposits.—Many of the lake basins are covered by deposits of salt and gypsum, the latter often occurring in the form of beautiful crystals (selenite).

River Valleys.—Loam deposits are formed by the rivers wearing away the old rocks, and carrying the finer material down from the hills and depositing it on the open level country, where it forms large rich plains. These deposits are often of great extent, spreading on either side from the rivers for a considerable distance. They are often very similar in character to those of the lake basins, but with this great difference, they contain less salt. They are best studied on the Upper Murchison, the Gascoyne, or Fitzroy Rivers, where there are large clay and loam flats, often many miles wide. These beds have probably been formed in the same manner as those of the lakes; but, having been better drained, the salt has been carried away by the rivers. Certain tracts, however, still contain much salt, which is replenished from time to time by large discharges of salt flood water from the lakes at the sources of the rivers.

All the rivers north of the Greenough form these large flats, but those in the south, form, instead, small deposits of clay, loam, sand, and gravel throughout their courses, which are very fertile.

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River Gravels.—These consist of sand, gravel, and angular fragments of rock, and are found in the beds of the northern streams, which large rivers are often as much as a mile wide.

In the north there are some extensive alluvial deposits, following the sea coast, not generally situated in the river valleys themselves, but formed by the rivers in time of flood; they are not, as a rule, of any great thickness, because outcrops of rock are frequent.

Brick Earth.—These deposits are met with in the valleys of many of the southern rivers. They are of high quality, making excellent terracotta ware, drain pipes, and bricks.

Estuarine Deposits.—These are met with at the mouths of the large northern rivers, where there are periodical tropical and semi-tropical floods. The rivers bring down large quantities of mud, which they deposit near the mouths, forming (excepting where coastal currents interfere) a kind of swampy delta, for the most part salt, overgrown with mangroves, and composed of a black, greasy mud, full in many places of recent petrifactions of crayfish, wood, and worm-tubes.

The estuarine deposits of the south are of very slight account, for the rivers are comparatively small, having but short courses, and discharge themselves, on emerging from the gorges they have cut through the ranges, into the arms of the sea, which runs from the coast to the foot of the ranges. Moreover, they are but seldom flooded by excessive rainfall, and so bring down very little detritus.

Mangrove Swamps.—Black, muddy, salt swamps, covered with mangrove, fringe a great part of the coast north of North-West Cape, or that part where the tide has considerable rise and fall. They are situated just about high-water mark, and are therefore covered either by each high tide or only by the spring tides.

Sand dunes occur along the west and south coasts at the river mouths, or where the land is low. They sometimes, as at Geraldton, reach a considerable height, and are a source of trouble, because they are constantly travelling unless kept carefully bushed or planted. Very often excellent water can be obtained beneath them, although that under the neighbouring flats may be bad.

Coastal Sand Plains.—These plains are met with in the southern portion of the colony, extending from the foot of the ranges, and cover the intervening lower ground between them and the sea. The sand here is much looser than in the interior, and is often of considerable thickness, of a red colour below the surface, and exhibits false bedding, which proves its origin to be æolian or windblown. There are many lakes and swamps on the plains, the water in which is often held by deposits of peat.

Raised Beaches.—These were noticed by the late Mr. Hardman, near Roebuck Bay, about 10 to 15 feet above the present sea level. One extends nearly 25 miles inland, and is from 12 to 18 miles wide. Its surface is covered with salt grass and samphire. Recent marine shells are found here and there, and in sinking a well a shelly deposit several feet in thickness, containing specimens of sea shells now found living on the coast, was passed through. Raised beaches of considerable extent are also met with at the foot of the Great Australian Bight.

Marine Shell, Marls, and Gravel.—These are of frequent occurrence along the coast between North-West Cape and the Leeuwin.

Surface Deposits.—Under this head come a large series of deposits not already referred to, the principal of which are the "gravel" and "iron-

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stone," which cover a considerable extent of the south-western portion of the colony.

These deposits are in reality indurated, nodular, ferruginous claystones called gravel, sometimes cemented by iron forming a conglomerate, and ferruginous sandstones, both of the latter being locally known as ironstone. They result from the disintegration of the different underlying formations (mostly crystalline rocks), and are most largely developed in the forest ranges, and it is upon them that the best jarrah grows. The so-called gravels are often of considerable thickness, and are largely used for ballasting railway lines. Their origin is difficult to understand, without it is due to bush fires, as they cap the highest ridges up to an elevation of 1,200 feet.

Volcanic Rocks.

Volcanic rocks, claimed as being of the Devonian Age, have been described by Mr. E. T. Hardman, from the Kimberley District:—

They consist of many varieties of basalt, including dolerite, and amanesite, trachy-dolerites, lavas, volcanic breccias, and ash beds, ferruginous wackenite, etc., and . . . . occupy a very extensive area of the country to the east of the Ord. The basaltic rocks not only occupy a considerable superficial area, but they are also of considerable thickness. . . . . This formation occurs as a vast sheet or floor of volcanic rocks, which was formerly ejected and spread out over the Devonian rocks, and subsequently in part denuded, and then covered by the carboniferous deposits, and these in their turn being to a great extent carried away, the basalt has again been exposed over the extensive area where we now find it. That it is of an intermediate age between the Carboniferous and the supposed Devonian rocks is certain, for within a short distance it is found resting on the one and covered by the rocks of the other formation, as at the junction (and a few miles below it) of the Panton and Elvire.

In the Ord District these rocks form a great plateau, as hereinbefore described. As a rule, they show a distinct bedding, the lines of which dip inwards to the mountains at angles from 5 to 10 degrees. The traps are extremely varied in character; although they may be regarded as the same rock as a whole, still in the same neighbourhood many varieties of specimens can be obtained.

Ancient lavas and breccias are common amongst these rocks, and some of the latter would seem to have been deposited under water, as they are distinctly stratified. Volcanic ash or tufas, consisting of fragments of basalt, trachy-dolerite, lavas, etc., are met with also. In one locality, near Mt. Napier, the deposit contained large angular fragments of the easily-recognisable Devonian grits; the nearest place where such rocks are at present found being 40 miles distant. These fragmental deposits were, however, probably found not far from some ancient volcanic vent. No indications of such volcanoes were actually observed; but there are many high peaks and cones visible across the plateau, some of which may prove, on more careful examination than we were able to give, to be portions at least of the ancient craters. At the same time the country has been subjected to such a vast amount of denudation that it is only barely possible that any of them should retain their original form.

Ferruginous Wackenite, or "Wackenite Dolerite," is a rock which caps the summit of Mt. Napier. It is deep red in colour and somewhat columnar in structure. When broken into it appears like a mass of somewhat pebbly red hematite, but it is simply the result of the gradual decomposition of the basalt which forms this hill. The wackenite cap is 20 or 25 feet thick.

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Other basaltic rocks of undetermined age occur in the same neighbourhood; there are, however, very good reasons for believing that they belong to the same geological period as those last described. Mr. E. T. Hardman thus describes these rocks:—

Along the western and southern extremity of the Leopold Ranges a band of trap rock, about a quarter to half a mile in width, occurs. It has been traced from Mt. Phillip to Mt. Huxley, and is again seen in a deep gorge, which apparently cuts right through these hills, passing a quarter of a mile north of Mt. Huxley and continuing in an east-south-easterly direction for about four miles. This chasm, which was named Straith-na-diaoul, is cut through quartzites and altered grits to the underlying trap rocks, which are about 500 yards wide; and these as well as the band outside the range, have evidently been forced up long after the stratified rocks were deposited, as may be inferred from the manner in which those stratified rocks have been contorted and tossed about in the immediate vicinity of the traps. Here the traps pass from diorites into dolerites, and *vice versa*. Similar rocks are seen at the upper end of the gorge through which the Margaret passes, at J 11, where these basaltic rocks are seen in the river bed, and in the precipitous river walls for more than one and a half miles, and in places for more than a quarter of a mile in width. That this basaltic outburst is of later date than that of the overlying rocks is certain, as the latter, which belong to the Metamorphic or Lower Silurian (?) system are upheaved by it to a considerable height and greatly contorted in places.

The character of the basalt here is similar in every respect to that near Mt. Huxley, and also to that of the flow basalts of the Antrim plateau. It is highly crystalline in places, and contains large quantities of olivine and epidote, with quartz veins.

Basaltic lavas are also known on the North-West coast to the south of Nullagine, and also on the Fortescue River.

Between Lake Cowan and Widgemooltha the character of the country, according to the researches of Mr. Göczel, late Field Geologist, is such that

All circumstances point out that the diorites in this place are the remains of lava streams which have flowed from a volcanic centre situated between the lakes Lefroy and Cowan, and to which also the formation of a watershed between the two lakes is due.

The same writer also states that —

Lake Cowan occupies the depressions of an old volcanic region. . . Nearly all the surrounding country of that lake consists of amphibolites, old greenstones, felsitic rocks and tuffs. The north-western shore is approached by gneiss-granite hills, often covered with amphibolites or greenstone cappings. The Palæozoic volcanic rocks become more and more predominant as we approach towards the lake, beneath which the gneiss-granite completely disappears. Along the western shore of the lake the great break in the archæan strata is most pronounced, and the rugged mountains and hills extending along the shores and forming islands in the lake are ruins of old volcanoes, which, in their time, were of similar build to strata volcanoes of later periods.

Basaltic lava is also known at Bunbury; here a mass of columnar basalt rises about 20 feet above sea level. Similar basalt again makes its appearance about five miles to the south of the Capel River. Basalt has also been described as occurring on the South Coast, to the east of Flinders Bay, at Black Point.

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CENSUS OF MINERALS OF WESTERN AUSTRALIA.

By Edward S. Simpson, B.E., F.C.S., Mineralogist and Assayer to the Geological Survey of Western Australia.

In Bulletin 4* of the Geological Survey the author first published a census of the minerals of the State. Since then, several new minerals have been recognised, and a number of additional localities noted, all of which appear in the following list. The commoner rock-forming minerals, such as quartz, felspars, micas, amphibole, etc., have been omitted as before, except where their occurrence is of marked interest either for economic or scientific reasons.

Most of the localities mentioned are to be found on the 45-Mile map of the State, published by the Lands Department in 1900. In order that they may be readily identified, the goldfield or division of the State in which they are situated is always indicated, the following abbreviations being employed:—

K.—Kimberley G.F.
Pil.—Pilbara G.F.
W.P.—West Pilbara G.F.
Ash.—Ashburton G.F.
Gas.—Gascoyne G.F.
P.H.—Peak Hill G.F.
M.—Murchison G.F.
Yal.—Yalgoo G.F.
E.M.—East Murchison G.F.
M.M.—Mount Margaret G.F.
N.C.—North Coolgardie G.F.
Ygn.—Yilgarn G.F.
C.—Coolgardie G.F.
B.A.—Broad Arrow G.F.
E.C.—East Coolgardie G.F.
N.E.C.—North-East Coolgardie G.F.
Dun.—Dundas G.F.
P.R.—Phillips River G.F.
Dk.—Donnybrook G.F.

Localities outside Goldfields.

N.E.—North of 27° South and East of 121° East.
N.W.—North of 27° South and West of 121° East.
S.W.—South of 27° South and West of 121° East.
S.E.—South of 27° South and East of 121° East.

Albite (*Silicate of aluminium and sodium*) Moolyella, Pil.; Londonderry, C.; Ravensthorpe, P.R.; Wodgina, Pil.; Southern Cross, Ygn.

Altaite (*Telluride of lead*).—Kalgoorlie, E.C.

Alunogen (*Hydrous sulphate of aluminium*).—Parker's Range, Ygn.

Andalusite (*Silicate of aluminium*).—Warrawoona, Pil.

Anglesite (*Sulphate of lead*).—Gorge Creek, Ash.

Aragonite (*Carbonate of calcium*).—Kanowna, N.E.C.

Arsenopyrite (*Sulpharsenide of iron*).—Ruby Creek, K.; Station Peak, W.P.; Niagara, N.C.; Smithfield, B.A.; Paddington, B.A.; Coolgardie, C.

Asbestos (*Hydrated silicate of magnesium*).—Tambourah (15 miles N. of), Pil.; Jarman Island, N.W.; Upper Henry River, N.W.; Mt. Magnet, M.; Menzies, N.C.; Feysville, E.C.; Hannan's Lake, E.C.; Pickering Brook, S.W.; Malcolm, M.M.; Paddington, B.A.; Ubini, C.; Leonora, M.M.

Asbolite (*Hydrated oxide of manganese and cobalt*).—Kanowna, N.E.C.; Leonora, M.M.; Kalgoorlie, E.C.; Norseman, Dun.; Kurnalpi, N.E.C.; Greenbushes, S.W.

Atacamite (*Hydrated oxychloride of copper*).—Peninsula, Dun.

* The Mineral Wealth of Western Australia. A. Gibb Maitland. Chap. 12, pp. 144-149. Perth: By Authority: 1900.

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Azurite (*Hydrated carbonate of copper*).—Croydon, W.P.; Whim Creek, W.P.; Gabanintha, M.; Yalgoo, Yal.; Rothesay, Yal.; Sir Samuel, E.M.; Northampton, S.W.; Narra Tarra, S.W.; Arrino, S.W.; Mt. Misery, S.W.; Murrin Murrin, M.M.; Leonora, M.M.; Broad Arrow, B.A.; Coolgardie, C.; Ravensthorpe, P.R.; Glen Roebourne, W.P.

Barite (*Sulphate of barium*).—Northampton, S.W.; Denmark, S.W.

Bauxite (*Hydrated oxide of aluminium*).—Wongan Hills, S.W.; Mahogany Creek, S.W.; Smith's Mill, S.W.; Mt. Baker, S.W.; Menzies, N.C.; Bardoc, B.A.; Greenbushes, S.W.

Bismite (*Oxide of bismuth*).—Yalgoo, Yal.; Coolgardie, C.

Bismuth (*Native metal*).—Yalgoo, Yal.; Lawlers, E.M.; Burbanks, C.; Dundas, Dun.

Bismuthinite (*Sulphide of bismuth*).—Yalgoo, Yal.

Bismutite (*Hydrated carbonate of bismuth*.—Yalgoo, Yal.; Lawlers, E.M.; Burbanks, C.

Bitumen (Dung Bitumen) (*Oxygenated mixture of hydrocarbons*).—Horseshoe, P.H.; Wilgi Mia, Weld Ranges, M.; Boogardie, M.; Leonora, M.M.

Blende (*Sulphide of zinc*).—Yandicoogina, Pil.; Croydon, W.P.; Geraldine, S.W.; Northampton, S.W.; Cardup, S.W.; Lawlers, E.M.; Murrin Murrin, M.M.; Coolgardie, C.; Kalgoorlie, E.C.; Norseman, Dun.

Bornite (*Sulphide of Copper and Iron*).—Wyman's, Pil.; Uaroo, Ash.; Gabanintha, M.; Ravensthorpe, P.R.; Coondip, P.R.; Mt. Desmond, P.R.

Bournonite (*Sulphantimonite of copper and lead*).—Wiluna, E.M.; Kalgoorlie, E.C.

Calaverite (*Telluride of gold*).—Kalgoorlie, E.C.; Mulgabbie, N.C.

Calcite (*Carbonate of calcium*)—

(1.) Limestone.—Napier Range, N.W.; Oscar Range, N.W.; Geikie Range, N.W.; Hull Range, N.W.; Fossil Hill, N.W.; Mt. Pierre, N.W.; Range south of Mt. Pierre, N.W.; Mt. Bertram, K.; Mt. Dockerell, K.; Elliot Range, K.; Albert Edward Range, Ord River, K.; Mt. Panton and all along west side of Great Antrim Plateau, K.; Minilya River, N.W.; Gascoyne River, N.W.; Barrow Island and other islands off the north-west coast; Shark Bay, Geraldton, Fremantle, Margaret River, and elsewhere along the west coast; Gingin, Yatheroo, Dandaragan, S.W.; Israelite Bay, Eyre, Eucla, and elsewhere along the south coast between those points extending inland over 150 miles, etc.

(2.) Crystallised Secondary Calcite.—Hall's Creek, K.; Brockman's, K.; Mary River, K.; Warrawoona, Pil.; Mt. Magnet, M.; Leonora, M.M.; Kanowna, N.E.C.; Paddington, B.A.; Broad Arrow, B.A.; Kalgoorlie, E.C.; Hannan's Lake, E.C.; Coolgardie, C.; Red Hill, C.; Yallingup and elsewhere in the south-west cave district, etc.

Cassiterite (*Oxide of tin*).—Head of the Bow River, K.; Moolyella, Pil.; Wodgina, Pil.; Cooglegong Creek, Pil.; Shaw Tinfields (near Eley's Well), Pil.; Greenbushes, S.W.

Cerargyrite (*Chloride of silver*).—Red Hill, C., Kalgoorlie, E.C.

Cerussite (*Carbonate of lead*).—Roebourne, W.P.; Whim Creek, W.P.; Mt. De Courcy (10 miles S.E. of), Ash.; Uaroo, Ash.; Gorge Creek, Ash.; Geraldine, S.W.; Northampton, S.W.; Narra Tarra, S.W.

Cervantite (*Oxide of antimony*).—Wiluna, E.M.; Mt. Magnet, M.

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Chalcocite (*Sulphide of copper*).—Uaroo, Ash.; Rothesay, Yal.; Murrin Murrin, M.M.: Geraldine, S.W.; Northampton, S.W.; Arrino, S.W.; Ravensthorpe, S.W.

Chalcopyrite (*Sulphide of copper and iron*).—Hall's Creek, K.; Panton River, K.; Ruby Creek, K.; Tambourah, Pil.; Wyman's, Pil.; Yandicoogina, Pil.; 20-Mile Sandy Creek, Pil.; Whim Creek, W.P.; Croydon, W.P.; Hong Kong, W.P.; Glen Roebourne, W.P.; Red Hill, Ash.; Uaroo, Ash.; Rothesay, Yal.; Yalgoo, Yal.; Geraldine, S.W.; Northampton, S.W.; Wongan Hills, S.W.; Serpentine, S.W.; Sir Samuel, E.M.; Erlistoun, M.M.; Murrin Murrin, M.M.; Mt. Ida, N.C.; Kalgoorlie, E.C.; Coolgardie, C.; Knutsford, Ygn.; Ravensthorpe, P.R.; Coondip, P.R.; Mt. Desmond, P.R.

Chrysocolla (*Hydrated silicate of copper*).—Croydon, W.P.; Red Hill, Ash.; Gabanintha, M.; Mt. Misery, S.W.; Sir Samuel, E.M.; Ravensthorpe, P.R.

Coal—

(1.) *Hydrous bituminous coal.*—Upper Irwin River, S.W.; Dongara, S.W.; Collie, S.W.; Dardanup, S.W.; Fly Brook, S.W.

(2.) *Brown Coal.*—Coolgardie, C.; Boolathanna Station, N.W.; Fitzgerald River, S.W.; Cliffy Head, S.W.

Coloradoite (*Telluride of mercury*).—Kalgoorlie, E.C.

Coolgardite (*Telluride of gold, silver, and mercury*).—Kalgoorlie, E.C.

Coorongite (*Oxygenated hydro-carbon*).—Cranbrook, S.W.; Denmark, S.W.; Hopetoun, P.R.

Copper (*Native metal*).—Roebourne, W.P.; Uaroo, Ash.; Rothesay, Yal.; Geraldine, S.W.; Northampton, S.W.; Mount Scratch, S.W.; Sir Samuel, E.M.; Coolgardie, C.

Covellite (*Sulphide of copper*).—Whim Creek, W.P.; Northampton, S.W.; Arrow Lake, B.A.; Kanowna, N.E.C.

Crocoisite (*Chromate of lead*).—Menzies, N.C.

Cuprite (*Oxide of copper*).—Tambourah, Pil.; Whim Creek, W.P.; Red Hill, Ash.; Uaroo, Ash.; Day Dawn, M.; Murrin Murrin, M.M.; Geraldine, S.W.; Northampton, S.W.; Mount Misery, S.W.; Wongan Hills, S.W.; Ravensthorpe, P.R.

Cyanite (*Silicate of aluminium*).—Bridgetown, S.W.; Greenbushes, S.W.; Bunbury, S.W.; Brunswick, S.W.

Diamond (*Carbon*).—Nullagine, Pil.

Dolomite (*Carbonate of calcium and magnesium*)—

(1.) Dolomite Rock.—Braeside, Pil.; Onslow, N.W.; Millie Soak, M.; Goddard's Creek, N.E.C.; Norseman, Dun.

(2.) Crystallised Secondary Dolomite.—Goongarrie, N.C.; Bardoc, B.A.; Kanowna, N.E.C.; Kalgoorlie, E.C.; Hannan's Lake, E.C.; Coolgardie, C.

Electrum (*Alloy of gold and silver*).—Donnybrook, S.W.

Emmonsite (*Hydrated tellurite of iron*).—Kalgoorlie, E.C.

Enargite (*Sulpharsenate of copper*).—Kalgoorlie, E.C.

Epidote (*Silicate of calcium, aluminium, and iron*).—Mary River, K.; Ramsay Range, near Margaret River, K.; Synnott Creek, N.W.; Broad Arrow, B.A.; Kalgoorlie, E.C.; Southern Cross, Ygn.; Mundaring, S.W.; Donnybrook, S.W.

Epsomite (*Hydrous sulphate of magnesium*).—Lake eight miles North of Kanowna, N.E.C.; and many other salt lakes of the Southern interior.

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Fluorite (*Fluoride of calcium*).—Kalgoorlie, E.C.

Fuchsite (*Silicate of aluminium, chromium, and potassium*).—Roebourne, W.P.; Kalgoorlie, E.C.; Kanowna, N.E.C.; Ravensthorpe, S.W.

Gadolinite (*Silicate of iron, beryllium, and yttrium*).—Cooglegong Creek, Pil.

Galena (*Sulphide of lead*).—Hall's Creek, K.; Mt. Dockrell, K.; Brockman's, K.; Panton River, K.; Ruby Creek, K.; Tambourah, Pil.; Warrawoona, Pil.; Roebourne, W.P.; Uaroo, Ash.; Mt. Edith, Ash.; Mt. De Courcy, Ash.; Yannerie River, N.W.; Hardey River, Ash.; George Creek, Ash.; Horseshoe, P.H.; Nannine, M.; Geraldine, S.W.; Northampton, S.W.; Oakagee, S.W.; Narra Tarra, S.W.; Cardup, S.W.; Erlistoun, M.M.; Menzies, N.C.; Mulwarrie, N.C.; Coolgardie, C.; Norseman, Dun.; Southern Cross, Ygn.

Garnet (*Almandine, silicate of iron and aluminium*).—Upper Lennard River, K.; Uaroo, Ash.; Northampton, S.W.; Donnybrook, Dk.; Greenbushes, S.W.; Albany, S.W.; Ellenshrook, S.W.; Parker's Range, Ygn.; Ravensthorpe, P.R.; Preston River, S.W.

Gold (*Native metal*):—

Kimberley G.F.—Hall's Creek, Brockman's, Mt. Dockrell, Ruby Creek, Panton River, Mt. Coghlan, Mt. Bradley.

Pilbara G.F.—Marble Bar, Nullagine, Lalla Rookh, Boodalyerrie Creek, Elsie Creek, Cooke's Creek, Mosquito, Yandicoogina, 20-Mile Sandy Creek, Warrawoona, Bamboo, Talga Talga, Tambourah, North Pole, North Shaw, Western Shaw, Middle Creek, Salgash, Just-in-Time, Head of Turner River.

West Pilbara G.F.—Egina, Hong Kong, Pilbara, Mallina, Peewah, Toweranna, Croydon, Roebourne, Upper Nickol, Lower Nickol, Station Peak.

Ashburton G.F.—Gorge, Top Camp, Mt. Mortimer, Hardey River, Tannaradgie, Dead Finish, Soldier's Secret, Tooree, McKenzie's.

Gascoyne G.F.—Bangemall, El Dorado.

Peak Hill G.F.—Peak Hill, Ravelstone, Wilgeena, Mt. Maitland, Horseshoe.

Murchison G.F.—Cue, Day Dawn, Mainland, Island (Lake Austin), Gabanintha, Burnakura, Nannine, Meekatharra, Abbotts, Garden Gully, Munara, Mt. Magnet, Cuddingwarra, Boogardie, Lennonville, Weld Range, Quinns, Tuckanarra, Webbs, Mulleta, Illawarra, Reedy's, Barrambie, Gum Creek.

East Murchison G.F.—Lawlers, Sir Samuel, Wiluna, Barlow's, Kingston, Mt. Pascoe, Darlot, Ogilvie's, Kathleen Valley, Anderson's, Wilson's, Mt. Clifford, Mt. Zephyr, Black Range, Nunngarra.

Mt. Margaret G.F.—Monowai, Erlistoun, Mt. Clarke (Ogilvie's), Mt. Varden, Cork Tree, British Admiral, Laverton, Mt. Barnicoat, Merolia, Jubilee, Childe Harold, Euro, Hawk's Nest, Mt. Margaret, Mt. Morgans, Korong, Redcastle, Waverley, Murrin Murrin, Mt. Abednego, Benalla, Cardinia, Randwick, Mertondale, Australian Peer, Malcolm, Malcolm Creek, Leonora, Mt. George, Dodger's, Middlesex, Kurrajong, Doyle's Find, Mt. Stirling.

Yalgoo G.F.—Yalgoo, Bilberatha, Noongal, Pinyalling, Lang's, Bates', Gullewa, Ederga, Carlaminda, Cumberland, Woodley's, Rothesay, Mt. Singleton, Nancarrong, Nynghan, Wadgingarra, Mugga Mugga, Naiaunda, Field's Find, Cagacarroon.

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North Coolgardie G.F.—Mt. Wilga, Linden, Eucalyptus, Pyke's Hollow, Pennyweight Point, Yundamindera (Granites), Edjudina, Quondong, La Tosca, Yerilla, Armidale, Tampa, Kookynie, Niagara, Menzies, Woolgar, Goongarrie, Isabel, Mt. Ida, Riverina, Mulline, Ularring, Mulwarrie, Davyston, Callion, Comet Vale, Pingin.

Yilgarn G.F.—Mt. Jackson, Knutsford, Southern Cross, Parker's Range, Jacolettis, Yellowdine, Hope's Hill, Duladgin, Mount Caudan, Blackborne, Mt. Rankin, Greenmount.

Coolgardie G.F.—Coolgardie, Burbanks, Londonderry, Bullabulling, Gibraltar, Gnarlbine, Red Hill, Widgiemooltha, Bonnievale, Kundanna, Barwon, Kunanalling, Kintore, London, Dunn's, Dunnsville, Carbine, Balgarrie, Grant's, Mascotte, Cashman, Carnage, Christmas Reef, Siberia.

Broad Arrow G.F.—Bardoc, Broad Arrow, Paddington, Windanya, Black Flag, Dixie.

East Coolgardie G.F.—Kalgoorlie, Boulder, Feysville, Binduli, Boorara, Waterfall, Block 45, Block 50.

North-East Coolgardie G.F.—Kanowna, Kurnalpi, Bulong, Ballagundi, Mt. Monger, Taurus, Garibaldi, Wellington, Vosperton, Lindsays, Mulgarrie, Mt. Eba, Black Hills, Sudden Jerk, Mulgabbie, Jubilee, Gordon, Camelia.

Dundas G.F.—Dundas, Norseman, Peninsula, Mt. Kirk, Mt. Deans, Buldania.

Phillips River G.F.—Ravensthorpe, Harbour View, Stennets.

Donnybrook G.F.—Donnybrook.

Localities outside Proclaimed Goldfields.—Greenbushes, S.W.; Blackboy Hill, S.W.; Peterwangy, S.W.; Wongan Hills, S.W.; Kendinup, S.W.; Bindoon, S.W.; Preston River, S.W.

Gold Amalgam (*Alloy of gold and mercury*).—Kalgoorlie, E.C.

Goldschmidtite (*Telluride of gold and silver*).—Kalgoorlie, E.C.

Graphite (*Carbon*).—Cue, M.; Northampton, S.W.; Kendinup, S.W.; Head of Donnelly River, S.W.; Mounts Brook, S.W.; Oldfield River, S.W.; York, S.W.; Coolgardie, C.; Kalgoorlie, E.C.; Bulong, N.E.C.

Guano (*Mixture of phosphates of calcium with carbonates, etc.*).—Monte Bello Is., N.W.; Lacepede Is., N.W.; Abrolhos Is., S.W.; Shag Is., S.W.; Seal Is., S.W.; Middle Is., S.E.; Recherche Archipelago, S.E.

Bat Guano.—Wanneroo, S.W.

Gypsum (*Hydrous sulphate of calcium*).—Oscar Range, K.; Onslow, N.W.; Cliffy Head, S.W.; Wagin, S.W.; Island (Lake Austin), M.; Menzies, N.C.; Kalgoorlie, E.C.; Boulder, E.C.; Coolgardie, C.; Parker's Range, Ygn.; Lake Cowan, and most other salt lakes of Southern interior.

Hæmatite (*Oxide of iron*).—Mt. Hardman, K.; Mt. Marmion, K.; Marble Bar, Pil.; Mt. Hale, P.H.; Horseshoe, P.H.; Mt. Beasley, P.H.; Peak Hill, P.H.; Mt. Gould, P.H.; Mt. No Name, P.H.; Weld Range, M.; Munara Hills, M.; Tuckanarra, M.; Nannine, M.; Mt. Magnet, M.; Star of the East, M.; Quinns, M.; Montagu Range, E.M.; Southern Cross, Ygn.; Red Hill, Ash.; Mt. Narryer, N.W.; Goomalling, S.W.; Greenhills, S.W.; Blackboy Hill, S.W.; Cookernup, S.W.; Bridgetown, S.W.; Mt. Jackson, Ygn.; Parker's Range, Ygn.; Kalgoorlie, E.C.; Bardoc, B.A.; Mulgarrie, N.E.C.

Halite (*Common salt, chloride of sodium*).—All the salt lakes in the southern interior; Rottnest Island, S.W.; Esperance, S.E.

Halloysite (*Hydrated silicate of aluminium*).—Norseman, Dun.

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Hausmannite (*Oxide of manganese*).—Broad Arrow, B.A.

Hessite (*Telluride of silver*).—Kalgoorlie, E.C.

Hypersthene (*Silicate of iron and magnesium*).—Margaret River, K.; Northam, S.W.; Greenhills, S.W.; Bardoc, B.A.; Norseman, Dun.

Ilmenite (*Oxide of iron and titanium*).—In all the more basic igneous rocks of the State, as well as in most river sands. Largely developed at Fitzroy River, K.; Greenbushes, S.W.; Mt. Barker, S.W.; Bunbury, S.W.; etc.

Iron Meteoric (*Mixture of alloys of iron and nickel*).—Meteoric irons have been found at Hamersley Range, N.W.; Ballinoo, M.; Mooranoppin, S.W.; Wogerlin Spring, Youndegin District, S.W.

Jamesonite (*Sulphantimonite of lead*).—Mt. De Courcy, N.W.

Kalgoorlite (*Telluride of gold, silver, and mercury*).—Kalgoorlie, E.C.

Kaolin (*Hydrated silicate of aluminium*).—Very pure at Menzies, N.C.; Kanowna, N.E.C.; Collie, S.W.; and elsewhere.

Lepidolite (*Fluosilicate of aluminium, potassium, and lithium.*)—Londonderry, C.; Cocanarup, P.R.; Ravensthorpe, P.R.

Limonite (*Hydrated oxide of iron*).—Found everywhere throughout the State. Some more important localities are:—Rough Range, K.; East of Mt. Elder Range, K.; Poondanah, Pil.; Whim Creek, W.P.; Gibson's Desert, N.E.; Peak Hill, P.H.; Wongan Hills, S.W.; Greenhills, S.W.; Mt. Baker, S.W.; Mahogany Creek, S.W.; Greenbushes, S.W.; Herdsman's Lake, S.W.; Mt. Jackson, Ygn.; Parker's Range, Ygn.; Murrin Murrin, M.M.; Menzies, N.C.; Vosperton, N.E.C.; Mulgarrie, N.E.C.; Kalgoorlie, E.C.; Coolgardie, C.; Bardoc, B.A.; etc.

Lollingite (*Arsenide of iron*).—Kalgoorlie, E.C.; Menzies, N.C.

Magnesite (*Carbonate of magnesium*).—Menzies, N.C.; Kanowna, N.E.C.; Bardoc, B.A.; Kalgoorlie, E.C.; Hannan's Lake, E.C.; Coolgardie, C.; Leonora, M.M.

Magnetite (*Oxide of iron*).—Lodestone Hill, K.; Paradise, S.W.; Darling Ranges, near Pinjarra, S.W.; Collie River, S.W.; Katanning, S.W.; Ravensthorpe, S.W.; near Morissey's Creek, N.W.

Malachite (*Hydrated carbonate of copper*).—Devil's Pass, N.E.; Oscar Range, near Brooking Creek, N.E.; Geikie Range, N.E.; Mt. Pierre, N.E.; Mueller Range, near Margaret River, K.; Hall's Creek, K.; Panton River, K.; South of Mt. Dockrell, K.; Marble Bar, Pil.; Tambourah, Pil.; Wyman's, Pil.; Whim Creek, W.P.; Glen Roebourne, W.P.; Mons Cupri, W.P.; Croydon, W.P.; Maitland River, W.P.; Upper Nickol, W.P.; Red Hill, Ash.; Carno, Ash.; George Creek, Ash.; Horseshoe, P.H.; Mt. Gould, P.H.; Day Dawn, M.; Gabanintha, M.; Yalgoo, Yal.; Rothesay, Yal.; Geraldine, S.W.; Northampton, S.W.; Narra Tarra, S.W.; Arrino, S.W.; Yandanooka, S.W.; Mt. Misery, S.W.; Wongan Hills, S.W.; Sir Samuel, E.M.; Murrin Murrin, M.M.; Leonora, M.M.; Goongarrie, N.C.; Mulline, N.C.; Mt. Ida, N.C.; Boorara, E.C.; Kalgoorlie, E.C.; Coolgardie, C.; Broad Arrow, B.A.; Ravensthorpe, P.R.; Harbour View, P.R.; Middle Mount Barren, S.W.

Mimetite (*Chlorovanadate of lead*).—Leonora, M.M.

Manganotantalite (*Tantalate of manganese*).—Wodgina, Pil.

Molybdenite (*Sulphide of molybdenum*).—Clackline, S.W.; Southern Cross, Ygn.; Coolgardie, C.; Balladonia, Dun.; Lawers, E.M.

Molybdite (*Oxide of molybdenum*).—Clackline, S.W.

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Monazite (*Phosphate of cerium and lanthanum*).—Jasper Lake, S.W.; Donnelly River, S.W.; Koombana Bay, S.W.; Perth, S.W.

Muscovite (*Silicate of aluminium and potash*).—Developed on a large scale at Tambourah, Pil.; Pyramid Hill, N.W.; Londonderry, C.; Northampton, S.W.; Wagin, S.W.; Mullalyup, S.W.; Greenbushes, S.W.

Ochre (*Oxide of iron and clay*).—Cossack.

Opal (*Hydrated silica*).—

(1.) Precious opal.—Coolgardie, C.

(2.) Common opal.—Mooran, P.H.; Yarra Yarra, N.W.; Yundamindera, N.C.; Hannan's Lake, E.C.; Burbanks, C.; Norseman, Dun.; Yundamindera, N.C.; Jerramungup, S.W.

(3.) Crocidolite.—Yarra Yarra, N.W.

(4.) Hyalite.—Mt. Magnet, M.; Bardoc, B.A.; Coolgardie, C.

(5.) Siliceous sinter.—Molygoa Well, P.H.; Bubba Ngundi Creek, M.; Northampton, S.W.; Hannan's Lake, E.C.; Burbanks, C.

(6.) Diatomaceous earth.—Minginew, S.W.; Arrowsmith Well, S.W.; Wanneroo, S.W.; Jandakot, S.W.; Perth, S.W.; Fremantle, S.W.

Orthoclase (*Silicate of aluminium and potassium*).—In large crystals at Londonderry, C.; Parker's Range, Ygn.; Northampton, S.W.; Albany S.W.; Collie Quarry, S.W.; Ravensthorpe, P.R.

Petzite (*Telluride of gold and silver*).—Kalgoorlie, E.C.; Mulgabbie, N.C.

Prehnite (*Hydrated silicate of calcium and aluminium*)—Coolgardie, C.

Psilomelane (*Hydrated oxide of manganese*).—Coolgardie, C.; Murrin Murrin, M.M.; Ravensthorpe, P.R.

Pyrites (*Sulphide of iron*).—Occurs plentifully in almost every district in the State.

Pyrolusite (*Oxide of manganese*).—Mt. Hardman, K.; Tooncoonarlagee, Pil.; El Dorado, Gas.; Wiluna, E.M.; Pinyalling, Yal.; York, S.W.

Pyromorphite (*Chlorophosphate of lead*).—Whim Creek, W.P., Geraldine, S.W.; Northampton, S.W.; Narra Tarra, S.W.; Leonora, M.M.

Pyrrhotite (*Sulphide of iron*).—Coolgardie, C.; Burbanks C.; Norseman, Dun.; Knutsford, Ygn.; Southern Cross, Ygn.; Parker's Range, Ygn.; Moora, S.W.; Menzies, N.C.

Quartz (*Silica*)—

(1.) Ordinary quartz.—Occurs in every district as a constituent of rocks or veins. Good crystals occur at Mulgarrie, N.E.C.; Kalgoorlie, E.C.; Burbanks, C.; York, S.W.

(2.) Chalcedony.—Widely distributed amongst the older rocks in the form of jasper "bars," as at the Marble Bar, Coongan River, Pil.; Weld Ranges, M.; Hannan's Lake, E.C., etc Also occurs at Lubbock Range, K.; Mt. Elder Range, K.; Tooncoonarlagee, Pil.; Paddington, B.A.; Hannan's Lake, E.C.; Siberia, C.; Londonderry, C.

Roscoelite (*Silicate of aluminium, vanadium, etc.*).—Kalgoorlie, E.C.

Rutile (*Oxide of titanium*).—Kalgoorlie, E.C.; Greenbushes, S.W.

Sal-ammoniac (*Chloride of ammonium*).—Irwin, S.W.

Scheelite (*Tungstate of calcium*).—Coolgardie, C.; Kalgoorlie, E.C. Southern Cross, Ygn., Norseman, Dun.; Mosquito, Pil.

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Serpentine (*Hydrated silicate of magnesium*).—Occurs in many districts as a product of decomposition of basic rocks, as at Hannan's Lake, E.C.; Coolgardie, C.; Mt. Dick, S.W. *Vide* Asbestos.

Siderite (*Carbonate of iron*).—Cue, M.; Menzies, N.C.; Kanowna, N.E.C.; Vosperton, N.E.C.; Kalgoorlie, E.C.; Hannan's Lake, E.C.; Burbanks, C.; Greenbushes, S.W.

Silver (*Native metal*).—Nannine, M.

Sphene (*Titano-silicate of calcium*).—Coolgardie, C.

Spodumene (*Silicate of aluminium and lithium.*)—Ravensthorpe, S.W.

Staurolite (*Silicate of iron, magnesium, and aluminium*).—Greenbushes, S.W.

Stibiconite (*Hydrated oxide of antimony*).—Wiluna, E.M.

Stibiotantalite (*Tantalo-niobate of antimony*).—Greenbushes, S.W.

Stibnite (*Sulphide of antimony*).—Mallina, W.P.; Peewah, W.P.; Wiluna, E.M.; Mt. Magnet, M.

Sulphur (*Native element*).—Peak Hill, P.H.; Mt. Magnet, M.; Burtville, M.M.

Talc (*Hydrated silicate of magnesium*).—Cue, M.; Lennonville, M.; Coolgardie, C.

Tantalite (*Tantalate of iron*).—Greenbushes, S.W.

Tellurium (*Native element*).—Kalgoorlie, E.C.

Tenorite (*Oxide of copper*).—Croydon, W.P.; Hong Kong, W.P.; Whim Creek, W.P.; Red Hill, N.W.; Arrino, S.W.

Tetradymite (*Telluride of bismuth*).—Stennets, P.R.; Coolgardie, C.

Tetrahedrite (*Sulphide of copper, antimony, and arsenic*).—Mt. Desmond, P.R.

Tin (*Native metal*).—Greenbushes, S.W.

Topaz (*Fluo-silicate of aluminium*).—Londonderry, C.; Greenbushes, S.W.

Tourmaline (*Silicate of boron, aluminium, etc.*)—

(1.) *Common black.*—Junction of Lennard and Richenda Rivers, K.; Mt. Philip, K.; Brockman's Creek, Pil.; Wodgina, Pil.; Pippengarra, Pil.; Pinyalling, Yal.; Leonora, M.M.; Mt. Monger, N.E.C.; Niagara, N.C.; Widgiemooltha, C.; Northampton, S.W.; Bowes, S.W.; Greenbushes, S.W.; Cocanarup, P.R.; Ravensthorpe, P.R.; Wodgina, Pil.; Upper Donnelly R., S.W.

(2.) *Gem.*—Ravensthorpe, P.R. (Rubellite).

Turgite (*Hydrated oxide of iron*).—Greenbushes, S.W.

Vanadinite (*Chlorovanadate of lead*).—Mulline, N.C.; Pinyalling, Yal.; Coolgardie, C.

Wolfram (*Tungstate of iron*).—Roebourne, W.P.

Zircon (*Silicate of zirconium*).—Greenbushes, S.W.; Donnelly River, S.W.

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3.—MINERAL PRODUCTION.*

(By A. Gibb Maitland, Government Geologist.)

SUMMARY.

The mineral products of Western Australia, though greater by several million pounds in their annual value, exhibit less variety than those of any of the other Australian States; hence a comparison of the mineral section of our imports and exports indicates in some measure the direction in which the State's resources have yet to be developed.

The total value of the mineral products of the State up to the end of 1903 was £47,779,376, and the value of the production during 1903 was £8,972,024, which, as compared with £8,094,826 during 1902, is a gain of £877,198 for the year.

The total annual value of the products has shown a substantial gain each year over the preceding one for the last three years, the highest gain being attained in 1901, when the increase over 1900 exceeded £1,000,000, the exact figures being £1,260,927.

The metals and metalliferous minerals, since they include gold, make up by far the greater proportion of the value of the output, being over 98 % of the total; and in fact, as well as a somewhat limited variety, there has been comparatively only a very moderate contribution from non-metalliferous minerals.

Fuels are limited to coal, the total production of which to date amounts in value to £306,424, while the value for 1903 was £69,128, as compared with £86,188 for 1902. This is a slight decrease, which was due to labour troubles, of short duration, affecting the Collie Proprietary Co., the largest producer.

The value of coal imported into the State during 1903 was £69,636; coke and patent fuel also forming an item of considerable value amongst the imports. Petroleum and natural gas have as yet not been produced in the State.

Structural materials, such as building stone, clays, etc., have, unfortunately, not so far been included in the statistical tables of production; but both are augmented to some extent by imports of slates, tiles, etc. The whole of the cement for structural purposes is imported.

Grindstones, oilstones, emery, etc., also only appear on the import list, though abrasive materials are not altogether without place in the mineral resources of the State; and considerable deposits of infusorial earth have recently been surveyed.

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* Statistics for 1904 are given on pp. 948-956.

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Chemical materials are limited, so far as production is concerned, to salt, but workable deposits of gypsum have been located from which possibly an output may soon be recorded.

Miscellaneous products comprise asbestos, graphite, limestone, precious stones, etc., as well as guano and artesian water, which, though not, strictly speaking, mineral products, are herein included on account of their importance to the State, and these, excepting of course the latter, amounted in total value of production, at the end of 1903, to £349,225. The contribution from guano was by far the largest, while of the others, except for limestone for fluxing purposes, amounting to £12,298, the value has been very insignificant.

Statistics of mineral production, and, as far as the available records will admit, statistics of imports and exports for the last five years, are given in detail in the following pages, dealing specially with the respective products; and also in the appendix.

The following table is a summary of the total quantity and estimated value of the mineral products of the State (including guano) up to the end of 1903.

Summary of the total Quantity and Value of the Mineral Products of Western Australia (including guano) up to the end of 1903.

Product.	Quantity.	Estimated Value.
METALS AND METALLIFEROUS MINERALS.		£
Gold (export and * mint)	10,933,141†	46,441,031§
Copper (ore raised)	48,914‡	269,412
Tin (ore raised)	4,995‡	288,172
Lead (ore exported)	33,644‡	364,756
Lead (pig exported)	684‡	13,306
Silver (exported)	341,024†	39,546
Silver-lead (ore raised)	57‡	429
Iron (ore raised)	50,792‡	33,871
Antimony (ore exported)	22‡	230
Cobalt (ores exported)	2‡	41
NON-METALLIFEROUS SUBSTANCES.		
Coal (raised)	568,401‡	306,424
Plumbago (ore exported)	1‡	6
Limestone (flux and building stone raised) ...	58,090‡	12,298
Precious Stones (exported)		1,024
Mica (exported)		294
Asbestos (exported)		11
Salt (raised)	3,318‡	8,525
Guano (exported)	86,165‡	335,592
TOTAL VALUE	...	48,114,968

* Since May, 1899. † Ounces fine. ‡ Statute tons.
§ Includes value of gold coined at Mint. ' Not stated.

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METALS AND METALLIFEROUS MINERALS.

GOLD.

General.—The auriferous deposits of Western Australia have been responsible up to the end of December, 1903, for the production of 10,933,141ozs. of fine gold, valued at £46,441,031, which figures include the whole of the raw gold entered for export, from the time of the first gold discovery in 1886, and also of that treated at the Perth Mint from its opening in 1899, which has either been exported or used for local purposes.

The metal has been found to occur under several different conditions, viz.:—

(1.) Native metal.

(2.) Compounds with tellurium and other elements.

(3.) Associated with other minerals.

(1.) Native gold has been recognised in several different varieties, the names by which they are known being generally descriptive of their outward appearance—thus, crystalline gold, dendritic gold, rough gold, flake gold, mustard gold, sponge gold.

(2.) Compounds with tellurium and other elements occur at Kalgoorlie and several other mining centres, but the latter have not, so far, been of much importance; being chiefly antimonial, arsenical, and bismuthic compounds. Tellurides of gold, however, are of more importance, and occur at Kalgoorlie and Mulgabbie, and at the former place, Boulder, more freely and in larger masses than in other known occurrences.

The most frequently occurring mineral is calaverite, whilst petzite, goldschmidtite, and two new minerals, Kalgoorlite and Coolgardite, have also been found in several of the mines.

(3.) Of the metallic minerals which are found to accompany gold in Western Australia, by far the most important is iron pyrites, which, with its concomitant oxides of iron, is found in every ore body from Kimberley to Dundas. Not only is this mineral found in close conjunction with free gold, but in many instances, such as at Red Hill (Coolgardie Goldfield), is itself found to carry a considerable amount of gold imperceptible to the naked eye. As a rule, the pyrites does not constitute more than four or five per cent. of the gangue, but at some mines in Menzies and Mt. Ida, amongst other places, it forms one-half or more of the latter.

Next in order of importance after pyrites is galena. It occurs in the gold reefs of Hall's Creek, Brockman's, and all the other Kimberley centres; but it is found that the richer the stone in galena, the poorer the gold. Galena also occurs in conjunction with gold at Tambourah and Horseshoe.

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Vanadinite has been detected with gold at Coolgardie and Pinyalling.

Arsenopyrite accompanies gold at Ruby Creek, Niagara, and Coolgardie. Some beautiful specimens of this mineral have been obtained from Bayley's United Gold Mine, at Coolgardie. They consist of veined arsenopyrite, traversed in every direction by a network of veins of gold, varying in width from 1-20th of an inch down to a microscopic thickness.

Zinc Blende is an indication of rich ore at Yandicoogina, Coolgardie, and Lawlers; in each instance, however, forming a very small proportion only of the total gangue.

Native bismuth and bismutite are found in auriferous quartz at Burbanks, Dundas, Yalgoo, and Lawlers. At Burbanks the native bismuth is alloyed with gold to the extent of about one per cent. The bismuth at Lawlers is also, in all probability, alloyed with gold, since the surrounding scales of bismutite are thick with fine scales of metallic gold.

Pyrrhotite occurs in the quartz reefs of Southern Cross and Burbanks, in neither of which instances is it nickeliferous.

Chalcopyrite and copper carbonates occur in association with gold at Coolgardie, Sir Samuel, Tambourah, Hall's Creek, Gorge Creek, and many of the Murchison centres.

Bournonite is of frequent occurrence in the beds at Kalgoorlie, and is also said to accompany gold at Wiluna.

Native copper is reported from Coolgardie, Sir Samuel, and Roebourne.

Scheelite occurs in bunches in auriferous reefs at Coolgardie and Southern Cross, but in both instances is characteristic of poor ore.

Of the earthy secondary minerals which accompany gold in Western Australia, quartz is the most important here, as elsewhere. Gold occurs in veins of calcite, more or less magnesian, at Mary River, Panton River, Kalgoorlie, Kanowna, and Red Hill (Coolgardie Goldfield). Chalcedony occurs in many quartz veins and is characteristic of much of the better ore at Donnybrook. Gold has been found in gypsum at the Island, Lake Austin, and is of frequent occurrence in the oxidised zone at Kalgoorlie. Actinolite, chlorite, and other minerals derived from the enclosing rock mass are found in many quartz reefs, but probably owe their origin to agencies other than those which caused the deposition of the gold, and are for that reason of little interest.

Purity of Western Australian Gold.—Mr. Wallace, the Statist to the Department of Mines, estimates the average fineness of the gold produced during 1903 at ·8379, of a value of £3 11s. 2¼d.

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per oz. So many impurities may, however, be added to, or removed from the gold during the process of extraction from its ores, that these figures give only a very crude idea of the average composition of the native metal. That its fineness varies very largely in different parts of the State, and follows no rule as to latitude or longitude, is shown by the analyses in the table below, all of which were made on carefully-cleaned specimens of the native metal.

Composition of Native Gold.

Nature of Gold.	Locality.	Specific Gravity.	Gold.	Silver.
Small alluvial nuggets ...	Hall's Creek, Kimberley	16·62	93·30	6·60*
Three-ounce alluvial nugget	do.	16·80	88·39	11·61
"Bobby Dazzler" nugget ...	Shark's Gully, Pilbara	14·66	76·81	23·04†
Gold from quartz boulders	Talga, Pilbara ...	16·20	84·46	15·54
Gold from conglomerate ...	Nullagine, Pilbara ...	...	91·21	8·79
Gold from quartz reef ...	Bamboo Creek, Pilbara	...	94·00	6·00
Do. do.	Toweranna, Pilbara ...	...	94·53	5·47
Do. do.	Peak Hill, Peak Hill	17·16	96·54	3·46
Do. do.	Nannine, Murchison ...	15·75	89·45	10·50
Sponge gold from lode ...	Boulder, Kalgoorlie, East Coolgardie	...	99·91	·09
Coarse gold from ironstone pebbles	Block 50, Coolgardie ...	18·91	99·46	·64
Crystalline gold from calcite vein	Red Hill, Coolgardie ...	18·00	93·21	6·72
Gold from alluvial	Preston River, South-West	...	92·90	7·10
Electrum from quartz reef ...	Donnybrook, Donnybrook	...	49·29	50·71

* Also contained ·10 % Copper and Iron. † Also contained ·15 % Copper and Iron.

Gold Matrices.—Over the auriferous area of the State, the ore deposits naturally fall into two classes:—

(*a.*) Primary deposits embracing lodes, veins, stockworks, dykes, lode formations, shallow impregnations of surface material, and all deposits in which concentration has been subsequent to the formation of the enclosing rock.

(*b.*) Secondary deposits embracing all alluvial deposits, residuary soils, gravels, and other deposits in which the gold has been concentrated by mechanical action contemporaneously with the formation of the rock itself.

The deposits included in class (*a.*) are of chief importance, the annual production therefrom in 1903 comprising 99 per cent. of the State's total.

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They are found chiefly in amphibolites or hornblende schists, but chloritic schists of somewhat doubtful origin frequently constitute the enclosing rock mass, and sometimes, in the Northern parts of the State, mica schists, slates, and quartzites or sandstones.

From the figures available the following table is the nearest approach to a statement of the annual production of gold from this class of deposits :—

*Annual Gold Yield from treatment of Ore raised.**

Year.	Quantity.	Year.	Quantity.
	ozs.		ozs.
Previous to 1897 ...	†569,093·02	1900	1,486,227·62
1897	630,311·96	1901	1,821,582·83
1898	967,044·73	1902	2,101,408·42
1899	1,550,424·44	1903	2,320,673·26
Total to end of 1903			11,446,766·28

* Excludes alluvial gold ; includes gold contained in quartz specimens. † Alluvial not separately reported previous to 1897.

The deposits included under class (*b.*) are of less importance, and from their derivation, in most cases the result of decomposition of gold-bearing rocks *in situ*, of less permanence. The production therefrom, largely the result of the operations of Dry-blowers, is also a somewhat ephemeral quantity.

The table shown below gives the annual production of alluvial gold, as reported to the Mines Department.

Annual Production of Alluvial Gold, as reported to the Mines Department.

Year.	Quantity.	Year.	Quantity.
	ozs.		ozs.
1897*	12,353·92	1901	19,915·49
1898	74,667·08	1902	15,832·59
1899	50,338·48	1903	14,751·89
1900	27,689·46		
Total to end of 1903			215,548·91

* Not separately recorded previous to 1897.

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The crystalline rocks—the matrices of the auriferous deposits—are divided into three broad parallel belts, formed of granite, gneiss, and schist, which trend generally north-west and south-east. Observations have shown that there are two fairly well-defined and more or less continuous ore-bearing belts, which have a distinct relation to the geotectonic features of the crystalline rocks. The schists, which constitute the principal auriferous belts, form long and comparatively narrow bands or attenuated elliptical patches. The schists consist of mica, chlorite, sericite, hornblende, and quartz, and serpentinous schists, together with hematite-bearing quartzites.

All the important auriferous areas occur within the limits or in the immediate vicinity of country occupied by the schistose rocks. These auriferous belts occupy a very large area of country, extending from the South Coast to the country lying between Spit Point and Cape Lambert, on the North-West Coast—extending over about 14 degrees of latitude. The auriferous belts exceed 20 miles in width in places.

There is a larger area of auriferous country exposed at the surface than in any other portion of Australasia, and since the relations which the auriferous deposits, one of the factors of the State's prosperity, bear to the broader geological features naturally take a prominent place in any account dealing with its mineral resources, the method adopted in the following pages has been to embody a brief *aperçu* of the salient features, in a separate description of each of the nineteen goldfields into which the auriferous area of the State has, for convenience of administration, been divided.

The information available, however, for the above purpose is, in one or two cases, more fragmentary than could be wished. It has been found most convenient to adhere to a strictly geographical order in description, beginning with the field at the northern extremity of the State. The description of each field is followed by a table, giving the yield of gold as shown by *(a.)* the figures furnished to the Department of Mines, and by *(b.)* the data in the archives of H.M. Customs House. It will be noticed that in all cases there is a difference between the two sets of figures. Up to the end of 1903 there have been officially reported to the Mines Department 11,662,315ozs. of gold from the various fields of the State; the Customs and Mint authorities, however, give 12,410,774ozs. as that entered for export, being 748,459ozs. in excess of the figures furnished to the Mines Department. The discrepancy is to be partly accounted for by the difficulty experienced in obtaining a record of the alluvial gold, and also by the fact that a good deal of the gold won in the early days was probably never officially reported. Writing in 1899, the Warden of Yilgarn notes, with reference to the output of gold from that district, that "a good deal of gold leaves the field and is not recorded."

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Total Production of Gold from the respective Goldfields, as reported to the Mines Department, and as entered for Export and received at Perth Mint.

Goldfield.	Reported to Mines Department.	Entered for Export and received at Perth Mint.	
	Gross weight.	Gross weight.	Fine contents.
	ozs.	ozs.	ozs.
Kimberley...	16,275·23	27,631·50	24,687·13
Pilbara	119.383·34	208,810·39	185,886·47
West Pilbara	12,803·81	14,952·27	12,960·75
Ashburton...	7,096·68	5,535·30	4,946·24
Gascoyne	524·82	691·80	613·07
Peak Hill	188,846·59	168,781·19	148,444·81
East Murchison	440,829·53	421,440·57	369,839·19
Murchison...	1,067,473·06	1,219,226·27	1,073,335·38
Yalgoo	55,152·91	42,660·22	37,989·28
Mt. Margaret	916,745·95	915,929·90	803,473 82
North Coolgardie...	913,694·66	903,115·47	793,629·46
Broad Arrow	236,267·69	196,325·97	174,023·26
North-East Coolgardie	597,122·13	448,390·43	397,549·67
East Coolgardie	5,846,949·10	6,134,610·34	5,394,803·09
Coolgardie	724,256·52	1,068,987·89	949,634·66
Yilgarn	241,896·36	339,869·90	302,214·86
Dundas	257,367·12	258,724·84	228,675·50
Phillips River	16,935·57	17,517·07	14,946·86
Donnybrook	1,141·88	946·65	839·74
Goldfields generally	1,552·24	16,625·64	14,647·69
Total	11,662,315·19	12,410,773·61	10,933,149·93

KIMBERLEY GOLDFIELD.

The most northerly goldfield in the State is that of Kimberley, and associated with its discovery in 1882 are the names of Mr. E. T. Hardman (then Government Geologist), Messrs. Hall and Slattery, and Phil. Saunders.

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The goldfield, which embraces an area of 33,000 square miles, was proclaimed on the 20th May, 1886. The boundaries, as defined by amendment gazetted on the 31st of October, 1902, to take effect from the 1st of November of that year, are as follows:—

Commencing at the intersection of the 129th meridian of east longitude with the 16th parallel of south latitude; thence south along 129th meridian to 19 degrees 30 minutes south latitude; thence west along said 19 degrees 30 minutes south latitude to the 126th meridian; thence north along 126th meridian to the 18th parallel of south latitude; thence north-easterly to the point of commencement.

The strata exposed on the goldfield consist of Crystalline Schists of Archæan Age, together with representatives of Cambrian, Devonian, and Carboniferous systems, as well as a large development of volcanic rocks.

The *Crystalline Schists* and allied rocks, the matrices of the metalliferous deposits, are highly developed in Kimberley. They consist of micaceous and talcose schists, gneiss, and granite. They have been proved to extend from near Denham River to Mount Dockrell, and appear again in the Mueller Range, a little further west; and, striking north-westwards, pass through the King Leopold Range to King Sound. This belt of rocks varies in width from 10 to 30 miles, and has been proved to have a horizontal extent of at least 120 miles, and probably continues much further.

Mining operations on the Kimberley field have been chiefly confined to six principal centres, viz.:—The Panton, Hall's Creek (the official centre of the field), Brockman's, Ruby Creek, the Mary River, and Mount Dockrell.

During the last few years the number of miners and diggers on the field has varied from 10 to 12, and there has been very little change in the condition recorded since 1900, except the fluctuations of a small output. After dropping to a very low limit in 1902, the gold yield showed a slight increase during 1903, and the production of alluvial gold was 197ozs.

Up to the end of 1903 the Kimberley field yielded, according to the Mines Department figures, 16,275ozs. of gold; the Customs authorities, however, report that up to the same date 27,631ozs. were entered for export. There is thus a discrepancy of 11,356ozs. between the two different sets of figures. This difference may in all probability represent the yield of alluvial gold, which, unless under exceptional circumstances, was in the early days never reported to the Government.

The following table shows the annual yield of the Kimberley Goldfield from 1886 to 1903, as deduced from official data:—

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Yield of Kimberley Goldfield.

Year.	Ore Crushed.	Yield of Gold therefrom.	Gold Exported and received at Perth Mint. Gross Weight.	Gold Exported and received at Perth Mint. Fine Contents.
	tons.	ozs.	ozs.	ozs.
1886			302·00	270·17
1887			4,873·00	4,359·37
1888			3,493·00	3,124·82
1889			2,464·00	2,204·28
1890			4,474·00	4,002·42
1891	*a* 13,199·50	12,734·00	2,699·62	2,415·07
1892			1,088·85	974·08
1893			1,621·70	1,450·77
1894			588·64	526·59
1895			876·68	784·27
1896			891·86	797·85
1897	383·50	229·30	554·07	495·67
1898	175·00	*b* 440·17	287·88	257·54
1899	694·00	*c* 917·15	1,122·81	1,004·46
1900	586·50	*d* 571·15	676·62	605·30
1901	185·00	*e* 297·06	663·37	601·26
1902	440·00	*f* 346·40	441·65	379·50
1903	890·00	*g* 740·00	511·75	433·71
Total	16,553·50	16,275·23	27,631·50	24,687·13

a Details not available. *b* Includes 310ozs. of alluvial. *c* Includes 417ozs. of alluvial. *d* Includes 331ozs. of alluvial. *e* Includes 164ozs. of alluvial. *f* Includes 151ozs. of alluvial. *g* Includes 197ozs. of alluvial.

PILBARA GOLDFIELD.

The Pilbara Goldfield was proclaimed on the 1st October, 1888, It embraces an area of 34,880 square miles.

Its boundaries, as defined by amendment gazetted on the 20th September, 1895, which took effect on the 1st November of that year, are as follows :—

Bounded by a line starting from a point on the sea-coast eastward from Condon Creek, and extending through the summit of Poolingerena (or Mount Blaze) to a spot due north from the summit of Mount Macpherson; then south through the said summit to a spot due east from the summit of Mount Marsh, on the Upper Fortescue River; thence due west through the summit of Mount Marsh to the right bank of the Fortescue River, along it downwards to Survey Station V 23; thence in a northerly direction through Survey Station V32 to the right bank of the Cocreaca branch of the Yule River, and along the right banks of the Cocreaca Creek and the Yule River, downwards to the sea-coast, and along the sea-coast eastward to the starting point. Excluding all townsites within the said boundaries.

What are believed to be the oldest rocks occurring in Pilbara are the granites and gneisses which form the platform upon which the newer formations were laid down. To these succeed the Greenstone schists and allied rocks, which occupy an extensive area of country, and which appear to be almost everywhere genetically connected with the occurrence of gold. Next in antiquity to the

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Greenstone schists come the Nullagine Beds, which form a series of sandstones, grits, conglomerates, limestones, and associated igneous rocks. This formation is of importance in that near the base of the series some of the conglomerates have been worked for their gold contents.

There are eight principal mining centres on the goldfield, viz.:—Lalla Rookh, Talga Talga, Bamboo, Marble Bar, Warrawoona, Yandicoogina, Mosquito Creek, and Nullagine. The geographical position of the various mining centres suggests a zonal development of the auriferous deposits, full particulars in connection with which will be found in Geological Bulletin No. 15.

The general direction of the belts almost everywhere coincides with the strike of the greenstone schists, which, when viewed broadly, is east and west. The width of the belts naturally varies. Quartz reefs occur in great abundance all through the schistose rocks, as well as to a more limited extent in the areas occupied by the granitic rocks. The quartz reefs are of two distinct types, viz., white quartz reefs and laminated quartz and jasper veins. The reefs invariably occur along the planes of foliation (? bedding) of the schists, or, at any rate, cut them at a very low angle. The reefs all carry rich shoots of gold, but when these became poor, operations ceased, for owing to the economic conditions prevailing only the richest ores can be worked at a profit. The auriferous ores are, with one exception, all of such a character, as render them readily amenable to battery amalgamation and cyanidation.

At Nullagine is a conglomerate, near the base of the series which has been worked latterly by the British Exploration Company. Crushings from the outcrop have yielded as much as 2ozs. to 4ozs. of gold to the ton; a trial crushing, however, of 777 tons yielded, in September, 94·10ozs. of gold, being at the rate of rather more than two pennyweights per ton. The gold, which seems to occur in well-defined bands, seems to be of a secondary nature. In some respects this conglomerate bears a close resemblance to those auriferous conglomerates of the Rand in South Africa, better known perhaps as banket deposits.

The gold yield from the Pilbara field, as reported to the Department of Mines, up to the end of 1903 has been 119,383·34ozs. obtained from the milling of 54,883·95 tons of ore, thus giving an average yield of 2·17ozs. per ton. It is unlikely that the high average of the last few years will be maintained under existing conditions: there is, however, a fair extent of low-grade ore deposits not yet developed, which, under more suitable conditions, might be turned to profitable account, for the deposits give every indication of being permanent.

During the year 1903 the output was 11,330ozs., or 7 per cent. less than the previous year; the decrease being due to the rainfall having fallen somewhat below the average, resulting in a scarcity of water for crushing purposes.

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The following table shows the annual yield of the Pilbara Goldfield from 1889 to 1903:—

Yield of the Pilbara Goldfield.

Year.	Ore Crushed.	Yield of Gold therefrom.	Gold Exported and received at Perth Mint.	
			Gross Weight.	Fine Contents.
	tons.	ozs.	ozs.	ozs.
1889			a11,170·00	9,992·63
1890			a16,055·31	14,363·01
1891			a11,875·00	10,623·32
1892			a12,892·80	11,533·84
1893	11,121·10	b 28,470·56	a11,698·50	10,465·43
1894			a16,254·50	14,541·20
1895			a19,522·40	17,464·65
1896			a11,810·11	10,565·27
1897	5,138·70	6,825·26	a11,955·87	10,695·67
1898	6,719·75	c 14,413·79	11,662·56	10,433·27
1899	7,567·55	d 19,291·98	20,528·20	18,362·65
1900	6,173·71	e 16,616·85	17,140·51	15,333·82
1901	5,414·11	f 10,264·32	11,320·40	10,260·43
1902	7,163·38	g 12,170·46	10,706·03	9,199·50
1903	5,585·65	h 11,330·12	14,220·20	12,051·78
Total	54,883·95	119,383·34	208,810·39	185,886·47

a Includes export from West Pilbara. b Includes 2,082ozs. from unknown tons. c Includes 2,000ozs. of alluvial and 102ozs. dollied and specimens. d Includes 2,608·29ozs. alluvial and 833·72ozs. dollied and specimens. e Includes 1,527·54ozs. of alluvial and 88·92ozs. dollied and specimens. f Includes 1,050·55ozs. of alluvial and 275·52ozs. dollied and specimens. g Includes 679·05ozs. of alluvial and 41·37ozs. dollied and specimens. h Includes 1,180·48ozs. of alluvial and 741·97ozs. dollied and specimens.

WEST PILBARA GOLDFIELD.

The West Pilbara Goldfield, 9,480 square miles in extent, originally included in the Pilbara Goldfield, was created a separate field by proclamation gazetted on the 20th of September, 1895, to take effect from the 1st November of that year.

The authorities define the boundaries as follows:—

The portion of Crown lands bounded by a line starting from the sea-coast, at the mouth of the Fortescue River, and extending along the right bank of the said river upwards to Survey Station V23; thence in a northerly direction through Survey Station V32, to the right bank of the Cocreaca branch of the Yule River, and along the right banks of the Cocreaca Creek and the Yule River, downwards to the sea-coast, and along the sea-coast westwards to the starting point.

The mining centres of this field are Croydon, Hong Kong, Lower Nicol, Mallina, Pilbara, Toweranna and Weerianna.

The total production, as reported to the Mines Department, was, up to the end of 1903, 12,803·81ozs. The output dropped to a very insignificant amount in 1901, but during 1902 and 1903 there has been a rather remarkable increase.

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The following table shows the annual yield of the West Pilbara Goldfield from 1889 to 1903:—

Yield of the West Pilbara Goldfield.

Year.	Ore Crushed.	Yield of Gold therefrom.	Gold Exported and received at Perth Mint.	
			Gross Weight.	Fine Contents.
	tons	ozs.	ozs.	ozs.
1889 to 1896	160·00	337·91	*a*	*a*
1897	608·85	860·06	*a*	*a*
1898	202·30	326·70	2,028·27	1,814·45
1899	879·85	*b* 1,934·80	1,955·51	1,749·39
1900	681·15	*c* 953·65	721·68	645·61
1901	48·00	*d* 231·29	480·86	435·84
1902	1,279·00	*e* 2,223·09	3,284·37	2,822·20
1903	4,673·00	*f* 5,936·31	6,481·58	5,493·23
Total	8,532·15	12,803·81	14,952·27	12,960·75

a Previously shown in the Pilbara (*vide ante*). *b* Includes 735·07ozs. of alluvial. *c* Includes 357·46ozs. of alluvial. *d* Includes 136·34ozs. of alluvial and ·45ozs. dollied and specimens. *e* Includes 907·61ozs. of alluvial and 3·18ozs. dollied and specimens. *f* Includes 372·16ozs. of alluvial.

ASHBURTON GOLDFIELD.

The Ashburton Goldfield was proclaimed on the 11th December, 1890.

As at present constituted, it embraces an area of 14,252 square miles. Its boundaries, defined by amendment gazetted on the 18th October, 1901, to take effect from the 14th of that month, are as follows:—

Bounded by lines starting from the summit of Mt. De Courcy; thence east by south to the summit of Mt. Wall; thence about south-east by east to Trig. Station $\frac{\wedge}{10}$; thence about south-east by south to the summit of Mt. Bresnahan; thence south-west by south 37 miles along the north-west boundary of Peak Hill Goldfield; thence by a line running about north-west by west to the summit of Mt. Palgrave; thence southerly along the west boundary of the Gascoyne Goldfield about 17 miles; thence due west, passing through Trig. Y2, about 56½ miles; thence due north about 113½ miles to a point due west of a point 7½ miles north of Trig. Station on Red Hill; thence due east, passing through aforesaid point about 77½ miles to a point due north of Mt. De Courcy; thence south about 49¼ miles to the starting point.

This field is situated on the Ashburton River, and extends from a point 150 miles from its mouth for 150 miles inland. The Ashburton River, for the most part, flows over large alluvial plains, with low ridges of clay, slate, and quartz out-cropping here and there, and flat-topped ranges away to the south; but in one place, called the Gorge, the hills close in upon the river, which then flows in a deep rocky channel for the space of a few miles.

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Most of the gold workings lie on the southern side of the river, the only exception being the "Dead Finish." Until quite recently all the work on this field was alluvial digging, but a few leases on reefs are now held, the alluvial diggings being almost deserted.

The field consists of seven mining centres, viz.:—Main Camp, Dead Finish, Star of the West, Top Camp, The Gorge, Mount Mortimer, and New Find.

The auriferous belt of country extends from the junction of the Hardey River with the Ashburton, a little to the north-east of Mount Clement, following the latter river in a south-east direction for about 150 miles. It is bounded on the south by the Barlee Range and a flat-topped tableland, which follows, at a distance of 14 miles to the south, the main course of the river. To the north it extends across the Ashburton and Hardey Rivers to Mount Wall and Mount De Courcy, a distance, in a northerly direction from the river, of from 20 to 30 miles, giving an auriferous area of about 10,000 square miles.

The total gold reported to the Mines Department up to the end of 1903, was 7,096·68ozs., which was almost entirely the product of alluvial mining. The value of the annual output for the last three years has remained almost stationary, and the mining centre of Mount Mortimer has been responsible for by far the greater proportion.

The following table shows the annual yield of the field up to the close of 1903:—

Yield of the Ashburton Goldfield.

Year.	Ore Crushed.	Yield of Gold therefrom.	Gold Exported and received at Perth Mint.	
			Gross Weight.	Fine Contents.
	tons.	ozs.	ozs.	ozs.
1891	*a*	*a*	838·72	750·31
1892	*a*	*a*	·70	·63
1893	*a*	*a*	467·74	418·43
1894	*a*	*a*	285·27	255·20
1895	*a*	*a*	540·76	483·76
1896	*a*	*a*	669·17	598·64
1897	...	*b* 302·95	1,038·18	928·75
1898	...	*c* 500·63	449·88	402·46
1899	...	*d* 1,659·10	521·30	466·36
1900	...	*e* 1,704·00	524·36	469·09
1901	...	*e* 992·00	63·92	57·94
1902	...	*e* 978·00	...	...
1903	...	*e* 960·00	135·30	114·67
Total	...	7,096·68	5,535·30	4,946·24

a No detailed records given. *b* 105·95ozs. alluvial and 197ozs. dollied and specimens. *c* 434·63ozs. alluvial and 66ozs. dollied and specimens. *d* 1,592·10ozs. alluvial and 77ozs. dollied and specimens. *e* Alluvial.

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GASCOYNE GOLDFIELD.

This goldfield, which embraces an area of 5,061 square miles, was officially proclaimed on the 25th of June, 1897, the proclamation to take effect from the 15th April of that year. The boundaries are thus defined by the authorities:—

Starting from the summit of Mount Palgrave, and extending about south-east by south to a point situate 37 miles from the summit of Mount Bresnahan in direction of Trig. Station K20; then about south-west by south to the said Trig. Station K20; thence about south-west to the summit of Mount Gascoyne; thence about north-west by north to the summit of Mount Agamemnon; thence northward to the summit of Mount Palgrave, the starting point.

The field, though geographically distinct, has been placed under the charge of the same Warden as the Ashburton.

Prospecting operations are chiefly confined to the neighbourhood of Bangemall, the official centre of the field, but no details as to the nature and mode of occurrence of the ore deposits are available.

The yield of this goldfield, as can be seen by the official figures appended, was, up to the close of 1903, small.

Yield of the Gascoyne Goldfield.

Year.	Ore Crushed.	Yield of Gold therefrom.	Gold Exported and received at Perth Mint.	
			Gross Weight.	Fine Contents.
	tons.	ozs.	ozs.	ozs.
1897	1·35	*a* 13·55	*e*	*e*
1898	...	*b* 13·50	*e*	*e*
1899	235·35	*c* 333·77	418·72	374·59
1900	...	*d* 74·00	86·10	77·02
1901	...	*d* 90·00	25·83	23·41
1902	...	...	124·86	107·29
1903	...	...	36·29	30·76
Total	236·70	524·82	691·80	613·07

a Includes 6·80ozs. dollied and specimens. *b* Dolhed and specimens. *c* Includes 119·43ozs. of alluvial. *d* Alluvial. *e* Details not available.

PEAK HILL GOLDFIELD.

The Peak Hill Goldfield, which comprises an area of 12,194 square miles, was established by proclamation gazetted on the 19th of March, 1897, to take effect from the 1st April of that year. The authorities define its boundaries as follows:—

The portion of Crown lands bounded by lines starting from an angle in the northern boundary of the Murchison Goldfield, at the summit of Mount Hale, and extending along the said boundary in an east-south-easterly direction to another angle at the summit of Mount Russell; thence due

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north to the north-easterly corner of the East Murchison Goldfield, latitude being on the 26th parallel of south latitude; thence in a northerly direction to Trig. Station L15 on Wonyuegunna Hill; thence in a north-westerly direction to the summit of Mount Bresnahan, between the Angelo River and the Upper Ashburton; thence in a south-westerly direction to Trig. Station K20 on a peak near the source of the Lyons River; thence still south-westerly to the summit of Mount Gascoyne; thence south-south-easterly to the starting point on the summit of Mount Hale.

The goldfield includes within its boundaries the high ground lying at the heads of the Gascoyne and the Murchison Rivers.

By far the larger portion of the goldfield upon which mining operations of any scale are carried out consists of undulating country, situated on the lofty plateau drained by the heads of the Murchison and the Gascoyne Rivers.

The mines at Peak Hill are situated on a flat at the foot of a small quartzite hill, from which the place takes its name.

The country rock consists of banded, and in places granular quartzites (with secondary silica), mica schists, or quartzites. A remarkable feature are the masses, veins, or dykes of pure silica, which traverse certain portions of the field. In a few places these veins present the appearance of massive quartzite, but their mode of occurrence at angles transverse to the strike of the adjacent strata confute this view. In one of these mines a vein of this character is seen cutting across an auriferous quartz reef. The majority of the quartz dykes trend north-east and south-west, and preserve a wide parallelism. They are generally inclined at high angles, but not far from the vertical. They have not, however, proved to be remuneratively auriferous. The ore bodies consist of a mass of country rock, traversed by a network of interlacing veins of auriferous quartz, where the gold is not confined to the reef or veins, but appears to be disseminated through the decomposed country rock.

Resting upon the underlying rocks of the field is a variable thickness of recent superficial deposits. These consist of loose gravel or loam, from which gold is obtained by the usual method of dry-blowing. There is, unfortunately, no record as to what amount of gold has been obtained from this loose material, unless it is represented by the 3,349ozs. recorded in 1895.

This gravel reposes directly upon an irregular surface of an iron-stained cement, which rests upon an old eroded watercourse, and fills up all the inequalities in the latter, which, however, are of no great depth. In some cases erosion has succeeded in cutting down the cement to bedrock, and exposing the underlying schists. Lithologically the cement is an ordinary conglomerate, formed by the mechanical action of water, and deposited in an old creek bed. The pebbles are embedded in a matrix of sand, formed of the comminuted remains of the underlying rocks. The component parts of the cement are in every way identical with those of the rocks at present outcropping, whilst the number of quartz pebbles are similar

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in character to the quartz forming those reefs by which the country rock is traversed. The gold in the cement is not exclusively in grains, scales, or nuggets, but is also found attached to its original quartz matrix. The official returns demonstrate that the amount of gold won from the cement has been considerable. As to whether the 4,551·60ozs. of gold returned, previous to 1897, from an unknown tonnage of quartz, were obtained from the cement or from the superincumbent loose gravel, the official data afford no clue.

At the present time mining operations are chiefly confined to the vicinity of Peak Hill, the official mining centre, and the Horseshoe Diggings, some miles to the north.

No discoveries of any importance appear to have been made during 1903, nor have any sensational finds been reported from any of the existing mines.

The State Battery has not been kept fully employed during the year, and during the six months it was kept running 1,011 tons of ore were crushed, yielding 972ozs. of gold, giving an average yield, per ton, of ·96oz. The difficulty of obtaining firewood and mining timber appears to be felt, and must present a serious problem in the future if serious mining operations are to be carried out.

The progress of the field during the year 1903 has been somewhat disappointing, the gold yield, as reported to the Mines Department, having fallen to 35,656·08ozs., being 1,830·17ozs. less than the previous year.

The following table shows the yield of the goldfield up to the close of 1903:—

Yield of the Peak Hill Goldfield.

Year.	Ore Crushed.	Yield of Gold therefrom.	Gold Exported and received at Perth Mint.	
			Gross Weight.	Fine Contents.
	tons.	ozs.	ozs.	ozs.
1894 to 1896	1,043·85	*b* 11,070·16	*a*	*a*
1897	2,851·25	*c* 10,883·23	5,110·00	4,571·38
1898	4,018·09	*d* 14,969·32	13,736·85	12,288·93
1899	10,922·00	*e* 31,953·65	31,995·34	28,622·45
1900	16,254·60	*f* 26,571·63	28,669·86	25,647·93
1901	24,025·50	20,255·47	21,607·47	19,584·29
1902	57,494·25	37,487·05	32,737·17	28,130·48
1903	66,072·50	35,656·08	34,924·50	29,598·92
Total	182,682·04	188,846·59	168,781·19	148,444·81

a Included in the Murchison export returns. *b* Includes 4,551·60ozs. from unknown tonnage. *c* Includes 399ozs. dollied and specimens. *d* Includes 368·80ozs. dollied and specimens. *e* Includes 478·90ozs. dollied and specimens. *f* Includes 24·85ozs. dollied and specimens.

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MURCHISON GOLDFIELD.

The Murchison Goldfield, as originally constituted, was first proclaimed on the 24th September, 1891; its boundaries were modified by proclamation gazetted on the 8th of February, 1895, to take effect from the 23rd January of that year. It embraces an area of 20,513 square miles. As defined by the authorities, the goldfield is—

Bounded by lines starting from the summit of Mount Murchison, and extending north-eastward to the summit of Mount Hale; thence east-south-eastward to the summit of Mount Russell; thence south-westward to the north-west corner of the Yilgarn Goldfield; thence west-north-westward to the summit of Wyemandoo Hill, and onwards to Trig. Station K6 on Goonahmoudey Peak; thence north-westward to the summit of Mount Farmer; and onwards to the summit of Mount Luke, and onwards to the summit of Mount Murchison.

Along the principal belt of auriferous country on the Murchison Goldfield, the rocks for the most part strike a little to the westward of north, and underlie to the westward. The geological structure of the greater portion of the goldfield is remarkable for its uniformity, and may be described as a series of persistent zones of basic and ultrabasic rocks associated with schists and altered forms.

So far as observations have at present been carried, the latter appear to be merely sheared or metamorphosed varieties of the former "greenstones," which comprise diorites, pyroxenites, amphibolites, etc., and in one form or another constitute what may be called the auriferous series.

These zones of schists and greenstones are surrounded by granitic rocks, which vary considerably in character in different localities.

The greenstone schists are remarkable for their persistent strike and horizontal extent, one belt alone having an average width of 10 or 15 miles, having been proved to extend for at least 60 miles.

Detailed observations have so far, of necessity, been devoted rather to economic than to stratigraphical geology, hence the solution of the exact relation of the various rocks comprising the main group has not in all cases been completely determined.

It is quite conceivable that more detailed research than has hitherto been found possible would result in the recognition of highly metamorphosed sedimentary beds among the foliated greenstones. One of the most characteristic features of the whole Murchison Goldfield is the frequent occurrence of belts of banded hematite-bearing quartzites which extend as roughly parallel bands, often continuous for many miles in length; they are generally from two to four chains in width and outcrop in the form of rough serrated ridges. These bands are merely quartz reefs or lodes of a peculiar type, and are everywhere confined to the greenstones; they vary in composition from almost pure quartz, through varieties

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of banded jaspers often of great beauty, to practically pure banded hematite, some of which (probably those of the Weld Ranges) might, under more favourable conditions, be turned to profitable account as sources of iron ore. Since they are generally themselves auriferous, though, as a rule, of too low grade to be of any commercial importance under present conditions, they belong to the auriferous deposits of the field which, with the pure quartz reefs, are therefore of two distinct types.

The quartz reefs, in general larger in the northern portion of the field than in the southern, occur in the granite in addition to the greenstones and altered rocks, but it is only those in the latter that have proved to be auriferous to any extent. Sometimes they cross the banded lodes, and at the junction rich chutes are almost invariably found; these reefs, however, occurring in connection with the quartzites, though frequently of considerable size, are almost invariably very irregular and their gold contents very patchy, small rich chutes being obtained at their point of contact or intersection with the quartzites; the reefs of this class, therefore, are not of much use to a large company owing to the annual return being too uncertain.

The reefs which occur wholly in the greenstones and some distance from the quartzites, are, as a rule, much more regular both in size and in their gold contents, and, although the gold is very often found to occur in them in chutes, these are usually of considerable extent. The reefs, generally speaking, give every promise of living to a depth, and if a good many of them which are now abandoned were sunk on and systematically worked to a reasonable depth they would probably give very satisfactory returns. At present practically no work has been done in the North Murchison district below a vertical depth of about 300 feet.

The quartzites themselves are only in one or two localities rich enough to be worked as a body; they are, however, frequently traversed by transverse lines of faults, and along these rich pockets of stone are often found. The faults in some localities cross them almost at right angles, the chutes being generally of small, horizontal extent, and limited to the immediate vicinity of the quartzites.

For administrative purposes the Murchison Goldfield has been divided into four districts, viz., Nannine, Cue, Day Dawn, and Mount Magnet.

The total production of the field, as reported to the Mines Department up to the end of 1903, was 1,067,473ozs. Marked progress has been made by the Murchison Goldfield during the last three years, each year showing a large increase over the preceding one, and the output for 1903 amounted to 241,791ozs., which is an increase of 15 per cent. over that of 1902.

The most important mine is the Great Fingall, the output of which for 1903, being 157,272ozs., is 65 per cent. of that of the whole field. It is expected that great benefit will be derived from the completion recently of the railway to Nannine.

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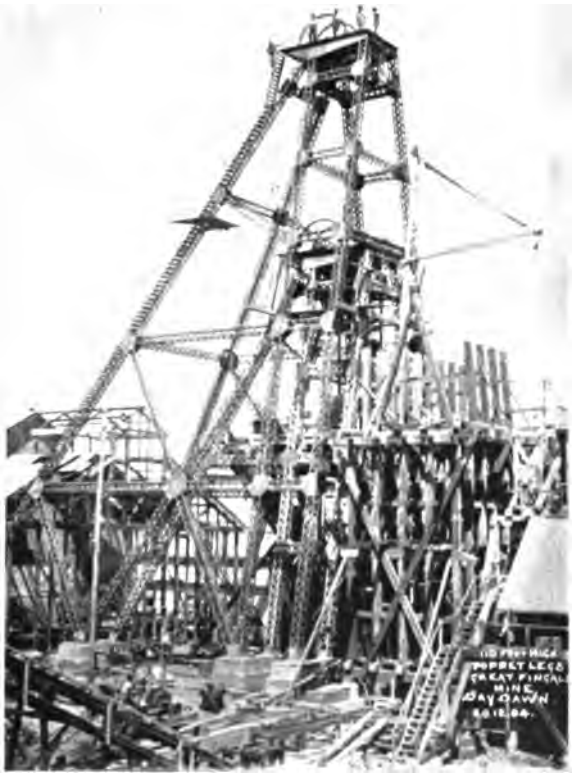

Poppet Legs, Great Fingall Gold Mine, Murchison.

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The following table gives the yield of the goldfield since the date of opening up to the close of 1903 :—

Yield of the Murchison Goldfield.

Year.	Ore Crushed.	Yield of Gold therefrom.	Gold Exported and received at Perth Mint.	
			Gross Weight.	Fine Contents.
	tons.	ozs.	ozs.	ozs.
1891			2,064·43	1,846·83
1892			24,356·47	21,789·19
1893			21,210·45	18,974·77
1894	110,805·00	*a* 140,432·28	52,946·32	47,365·54
1895			65,477·26	58,575·66
1896			71,282·69	63,769·17
1897	72,003·80	*b* 62,316·10	82,891·85	74,154·67
1898	92,255·80	*c* 79,256·39	93,667·16	83,794·22
1899	66,696·87	*d* 80,548·71	93,518·03	83,660·80
1900	96,791·03	*e* 105,722·31	108,696·58	97,239·47
1901	113,213·43	*f* 146,591·93	144,693·86	131,145·66
1902	153,142·51	*g* 210,813·86	212,570·34	182,657·99
1903	189,945·13	*h* 241,791·39	245,850·83	208,361·41
Total	894,853·57	1,067,473·06	1,219,226·27	1,073,335·38

a Includes 2,340ozs. dollied and specimens and 1,072ozs. from unknown tons. *b* Includes 1,041·67ozs. dollied and specimens. *c* Includes 1,119·12ozs. dollied and specimens. *d* Includes 199·13ozs. of alluvial and 2,844·30ozs. dollied and specimens. *e* Includes 512·85ozs. of alluvial and 3,273·29ozs. dollied and specimens. *f* Includes 1,412·07ozs. of alluvial and 856·86ozs. dollied and specimens. *g* Includes 1,021ozs. of alluvial and 154·65ozs. dollied and specimens. *h* Includes 1,460·85ozs. of alluvial and 863·75ozs. dollied and specimens.

EAST MURCHISON GOLDFIELD.

The East Murchison Goldfield was originally proclaimed on the 28th June, 1895, but, for administrative purposes, its boundaries were altered by proclamation gazetted on the 28th Mr h, 1902, to take effect from the 2nd April, 1902, and still fu ther proclamation gazetted on the 6th January, 1905, and the gold. a at present embraces an area of 25,420 squa.e miles, being thus defined by the authorities :—

Bounded by lines starting from the southernmost ner of the Murchison Goldfield, situate about four and a-half miles east about four miles south from Trig. Station K75 on Wyemandoo Hill, and extending north-easterly along the east boundary of the Murchison Goldfield about 162 miles to the summit of Mt. Russell; thence north about 33 miles along the east boundary of the Peak Hill Goldfield; thence east about 124 miles; thence south along the west boundary of the Mt. Margaret Goldfield (and passing through a point about nine miles west of Trig. Station JHR58 on the summit of Mt. Waite) about 154 miles; thence west about 62 miles (passing through survey mark AN62); thence south about 24½ miles (passing through the 24-mile post on the Lawlers-Leonora telegraph line); thence west, passing along part of the northern boundary of the North Coolgardie Goldfield about 130 miles to the starting point.

Observations made in the East Murchison Goldfield have shown that granite is the staple formation, which has been invaded by dykes and masses of some basic rock, together with a much later

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series of intrusions of acidic rocks, which usually form narrow tortuous dykes. Near the junction of the basic rocks and the granite a strong development of hornblende, mica, and iron-bearing quartz schists are of frequent occurrence. These schists are seen to pass gradually into granite in such a way as to suggest that they may be merely highly metamorphosed forms of the latter. These crystalline rocks are covered by sandstones, quasi-vitreous sandstones, and conglomerates, which have been classed, inferentially, as of Mesozoic Age. Of a much newer date than these are the deposits of ironstone gravel which cover such an extensive area of country. The origin of these, however, is not quite understood. Their largest development occurs to the west of the Montague Range, which is made up of iron-bearing quartz schists of the type so prevalent in the Mt. Hale district.

There are now 11 mining centres on the East Murchison Goldfield, viz., Lawlers, Lake Darlôt, Mt. Sir Samuel, Lake Way, Black Range, Cork Tree, Kathleen Valley, Mt. Clifford, New England, Wilson's Creek, Wilson's Patch.

At Lawlers the reefs are said to occur along the zone of contact between the gneissic granite and diorite schists. The reefs have a general east and west trend, and can be followed along the surface for considerable distances.

The Mt. Sir Samuel mining centre is situated at the southern end of the Violet Range, immediately to the north of Lake Miranda. Geologically, this range is a diorite boss, occurring in massive granite, of a similar nature to the granite of Lake Way. Breaking through the diorite boss, usually in an east and west direction, are numerous granite dykes of apparently a later age. They are particularly conspicuous on the sides of Mt. Goode, where they can be traced for considerable distances. In close association with these dykes are some very large quartz reefs, which latter, as far as surface indications show, follow the strike of the dykes with great persistency. At McDonough's Lookout, another apparently disconnected diorite boss is found, with numerous granite dykes intruding it, and the associated quartz reefs. The granite dykes in this locality are coarse-grained, and can clearly be seen to consist of quartz, orthoclase felspar, and mica. The mica, however, occurs in two forms, the Muscovite (common white mica) and Lepidolite (lithia mica). The quartz reefs at McDonough's Lookout are of the white opaque barren variety, and will scarcely recommend themselves to prospectors. Included in the quartz are large irregular mangano-ferruginous nodules in considerable quantity. In addition to the reefs associated with the granite dykes other quartz reefs are found in the massive diorite. These latter, for the most part, though sometimes rich in gold, are lenticular, and too expensive to work or prospect for in the hard diorite rock. Besides the quartz reefs, there is one example of a fissure lode being worked, viz., at the Belle Vue mine.

The mining history of the field has been one of steady progress, and during the last few years several new centres have sprung into-

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existence; the most recent is that known as the Black Range, which appears to show some promise.

The production of the field during 1903 was 102,896ozs., and showed an increase of 13 per cent. over that of the previous year. The total output from the field up to the end of 1903 amounts to 440,829ozs.

The following table shows the yield of gold from the district since the opening of the field: —

Yield of the East Murchison Goldfield.

Year.	Ore Crushed.	Yield of Gold therefrom.	Gold Exported and received at Perth Mint.	
			Gross Weight.	Fine. Contents.
	tons.	ozs.	ozs.	ozs.
1896	1,467·00	*a* 2,576·00	...	...
1897	11,763·00	*b* 20,995·07	9,453·81	8,457·34
1898	31,947·99	*c* 37,080·32	39,563·35	35,393·19
1899	42,166·75	*d* 45,038·90	41,569·66	37,188·03
1900	56,923·00	*e* 64,698·03	58,369·50	52,217·09
1901	84,618·45	*f* 76,236·10	77,604·04	70,337·70
1902	138,137·75	*g* 91,308·85	91,976·45	79,033·73
1903	154,954·22	*h* 102,896·26	102,903·76	87,212·11
Total	521,978·16	440,829·53	421,440·57	369,839·19

a. Previous to 1896 the returns were included in the Murchison Field, *vide ante*. *b*. Includes 621·18ozs. of alluvial and 443·17ozs. dollied and specimens. *c*. Includes 641·14ozs. of alluvial and 1,115·26ozs. dollied and specimens. *d*. Includes 1,628·22ozs. of alluvial and 1,485·38ozs. dollied and specimens. *e*. Includes 738·54ozs. of alluvial and 280·13ozs. dollied and specimens. *f*. Includes 203·79ozs. of alluvial and 447·25ozs. dollied and specimens. *g*. Includes 385·21ozs. of alluvial and 1,978·95ozs. dollied and specimens. *h*. Includes 640·98ozs. of alluvial and 641·50ozs. dollied and specimens.

MOUNT MARGARET GOLDFIELD.

This goldfield, which was previously included in the North Coolgardie Field, was declared by proclamation gazetted on the 12th March, 1897, to take effect from the 1st April of that year; its boundaries were amended by proclamation gazetted on the 28th of March, 1902, taking effect on the 2nd April, 1902, and still further by proclamation gazetted on the 6th January, 1905, and the goldfield at present embraces an area of 44,976 square miles.

The boundaries, as defined by the authorities, are as follows:—

Bounded by lines starting from the north-east corner of the East Murchison Goldfield; thence east about 200 miles to the 125th meridian of east longitude; thence south about 210 miles; thence west along part of the north boundary of the North Coolgardie Goldfield, passing through a tree marked B 82 at Brickey's Soak about 262½ miles; thence north about 31 miles along the boundary of the North Coolgardie Goldfield to the boundary of the East Murchison Goldfield; thence east about six miles; thence north, passing through the 24-mile post on the Lawlers to Leonora telegraph line about 24½ miles; thence east about 62 miles, passing through survey mark AN 62; thence north about 154 miles, and passing through a point about nine miles west of Trig. Station JHR 58 on the summit of Mt. Waite to the starting point.

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This field is one of the most recently established goldfields, and is already one of the most important in the State.

Detailed geological observations have been carried out at several of the more important mining centres, but our knowledge of many portions of the field is somewhat meagre.

A very large portion of the surface of the ground is covered with a variable thickness of recent accumulations, derived from the disintegration of the underlying rocks; this forms the matrix of the alluvial gold.

The stable formation is granite, granitic gneiss, schists, and a series of basic rocks. The latter, comprising diorite, diabase, pyroxenite, etc., and the schists constitute the auriferous series, which here in some respects shows a resemblance to that of the Murchison Goldfield. The general strike of the schists is in a north-west direction, and they are often vertical or inclined at high angles.

There is here also a characteristic development of the banded quartz lodes or quartzites, which themselves are in some cases auriferous; but the hematite-bearing varieties are much more exceptional than in the case of the Murchison Goldfield. The other main types of auriferous deposits are the lodes or lode formations and pure quartz reefs, the latter often being of very large size; in such cases, however, there is a strong tendency to a lenticular form with no great horizontal extent.

Such lenses, quartz blows, often attain a great thickness in the widest portion, in one instance over 70 feet of solid white quartz. The most important quartz reefs are generally in the greenstones, but they occur also in the granite, and particularly at the junction.

The banded quartzites and lodes are confined to the greenstone, and many of the former stand up in bold relief and can be traced by the eye for many miles across country.

It is associated with one of these bands that the ore body of the Westralia Mount Morgans occurs.

The auriferous deposit of the Sons of Gwalia, another of the more important producers of the field, is of the type distinguished as lodes or lode formations.

The other more important mines are the Ida H. and Lancefield.

The field, for administrative purposes, is divided into three main districts, Morgans (the official centre), Laverton, and Malcolm (including Leonora). Besides the production of gold, the Mount Margaret field has also contributed a good deal towards the copper production of the State. The total gold production to the end of 1903 was 916,746ozs., and during 1903, 212,490ozs., and the statistics show a record of steady progress.

A good deal of prospecting was done within the year, and promising reports were received from the locality known as the Erlistoun, to the west of the more established centres.

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The following table shows the yield of the Mount Margaret field, since its inception, up to the end of 1903:—

Yield of the Mount Margaret Goldfield.

Year.	Ore crushed.	Yield of Gold therefrom.	Gold Exported and received at Perth Mint.	
			Gross Weight.	Fine Contents.
	tons.	ozs.	ozs.	ozs.
1895 to 1896	231·00	*b* 4,992·10	*a*	*a*
1897	13,198·74	*c* 22,592·09	8,685·73	7,770·22
1898	37,506·67	*d* 49,717·77	43,266·69	38,706·19
1899	75,586·35	*e* 79,923·72	81,817·07	73,193·17
1900	132,821·25	*f* 145,688·75	141,523·00	126,605·83
1901	246,578·00	*g* 190,032·15	198,807·70	180,192·63
1902	274,343·45	*h* 211,308·77	216,637·14	186,152·50
1903	270,797·33	*i* 212,490·60	225,192·57	190,853·28
Total	1,051,062·79	916,745·95	915,929·90	803,473·82

a Previous to 1897 included in North Coolgardie returns. *b* Includes 300ozs. dollied and specimens. *c* Includes 588·84ozs. of alluvial and 2,018·25ozs. dollied and specimens. *d* Includes 675·25ozs. of alluvial and 378·68ozs. dollied and specimens. *e* Includes 345·05ozs. of alluvial and 601·18ozs. dollied and specimens. *f* Includes 5·20ozs. of alluvial and 1,271·79ozs. dollied and specimens. *g* Includes 604·06ozs. of alluvial and 1,215·22ozs. dollied and specimens. *h* Includes 291·57ozs. of alluvial and 351·77ozs. dollied and specimens. *i* Includes 199·96ozs. of alluvial and 135·05ozs. dollied and specimens.

YALGOO GOLDFIELD.

The Yalgoo Goldfield was declared by proclamation gazetted on the 8th February, 1895, taking effect from the 23rd January of that year. Its boundaries, which enclose an area of 18,921 square miles, are thus defined by the authorities:—

Starting from the summit of Mount Murchison and extending west-south-westerly to the summit of Tallering Peak; thence south-easterly to the summit of Mugga Mugga Hill, and onwards to the summit of Mount Gibson, which lies about 12 miles south-west from Ninghan Creek; thence eastward to Trig. Station K 83 on the west shore of Lake Moore; thence due east to the western boundary of the North Coolgardie Goldfield, and along it north to its north-west corner; thence north-westward to the summit of Wyemandoo Hill, and onwards to Trig. Station K 6 on Goonahmoudey Peak; thence north-westward to the summit of Mount Farmer, and onwards to the summit of Mount Luke, and onwards to the summit of Mount Murchison.

The mining centres of the Yalgoo field are Bilberatha, Carlaminda, Field's Find, Gullewa, Kirkalucka, Noongal, Nynghan, Rothesay, Wadgingarra, Yalgoo, and Yuin.

The progress of this field has not been satisfactory, each year's output showing somewhat of a decrease; half the production, during 1903, of 3,842ozs. is accounted for by the output of one property, the Field's Find mine. The total production up to the end of 1903 has been 55,153ozs.

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The following table shows the progressive yield of the goldfield up to the close of 1903:—

Yield of the Yalgoo Goldfield.

Year.	Ore Crushed.	Yield of Gold therefrom.	Gold Exported and received at Perth Mint.	
			Gross Weight.	Fine Contents.
	tons.	ozs.	ozs.	ozs.
1895 to 1896	*a* 2,488·00	*a* 7,227·00	*b*	*b*
1897	3,666·97	3,455·79	2,034·23	1,819·81
1898	4,424·50	3,298·95	3,756·38	3,360·44
1899	17,933·51	*c* 12,135·94	10,879·58	9,732·83
1900	15,596·20	*d* 10,101·86	9,368·57	8,381·06
1901	13,117·30	*e* 9,238·25	9,198·51	8,337·22
1902	3,992·50	*f* 5,853·37	5,679·41	4,880·23
1903	2,412·00	3,841·75	1,743·54	1,477·67
Total	63,630·98	55,152·91	42,660·22	37,989·28

a Details not available. *b* Previous to April, 1897, included with Murchison. *c* Includes 16·50ozs. dollied and specimens. *d* Includes 289ozs. dollied and specimens. *e* Includes 12·08ozs. of alluvial and 4·90ozs. dollied and specimens. *f* Includes 13ozs of alluvial.

NORTH COOLGARDIE GOLDFIELD.

This goldfield was proclaimed on the 28th June, 1895, its boundaries being subsequently amended by proclamation gazetted on the 12th March, 1897, to take effect from the 1st April of that year; it embraces an area of 30,609 square miles, and, according to the authorities, is circumscribed—

By lines starting from the southernmost corner of the Murchison Goldfield, being the south-west corner of the East Murchison Goldfield, and situate about 12 miles east and 5 miles south from Trig. Station K75 on Wyemandoo Hill, and extending south to the south-east corner of the Yalgoo Goldfield, which is a point due east from Mt. Gibson, near Lake Moore, and due north of a spot 10 miles west of a cairn on Yorkrakine Granite Rock; thence east-south-east to a point about 50 miles due west from a cairn marked NB1, near Wangine Soak; thence east to Survey Station NB1, thence about 87° 20 miles 22 chains to Survey Station R3; thence east to the 125th meridian east longitude; thence north along that meridian to a point east of a tree marked B82 at Brickey's Soak; thence west through the said tree to a spot about 76¼ miles west from it, and 13 miles north and 15 miles east from the summit of Mount Ida; thence north about 31 miles to the south boundary of the East Murchison Goldfield, and west to the starting point.

This field, which originally formed part of the Coolgardie Goldfield, has, for purposes of administration, been subdivided into the Menzies, Ularring, Niagara, and Yerilla districts.

In its geological structure, the field presents features which connect it geologically with those of Kalgoorlie and Coolgardie. The country rocks consist of granite, gneiss, hornblende, mica, sericite, and serpentinous schists, associated with amphibolites, ferruginous quartzite, and diorite dykes. Felsite dykes have been noticed in some parts of the district. Ferruginous conglomerate,

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passing in places into pure limonite, occupies the caps of certain of the hills. All the rocks have suffered a considerable amount of decomposition, which extends to a depth of about 100 feet from the surface.

The lodes of Menzies, which are of a more or less schistose habit, have an approximate parallelism: they trend generally north-west, and have a fairly high underlie to the west. The gold occurs associated with iron, copper, and arsenical pyrites, galena (which is very abundant), and zincblende. Free gold occurs in the rocks within the zone of oxidation.

Mining is generally prosperous, but the outlying centres were somewhat hampered by want of water during the early part of the year.

The gold yield of 195,426ozs., during 1903, from this extensive field is the largest yet recorded and is an increase of 5 per cent. over that for the previous year; the total gold yield up to the end of 1903 amounts to 913,694ozs.

The following table shows the yield of the field up to the close of 1903:—

Yield of the North Coolgardie Goldfield.

Year.	Ore Crushed.	Yield of Gold therefrom.	Gold Exported and received at Perth Mint.	
			Gross Weight.	Fine Contents.
	tons.	ozs.	ozs.	ozs.
Previous to 1897 ...	14,265·30	*a* 26,962·85	*i* 17,160·51	15,351·71
1897	32,840·95	*b* 61,362·82	74,556·12	66,697·57
1898	42,032·79	*c* 72,878·88	70,625·32	63,181·09
1899	93,222·25	*d* 116,968·14	105,688·76	94,548·69
1900	90,727·99	*e* 106,773·97	106,193·38	95,000·12
1901	108,271·65	*f* 148,305·00	142,798·10	129,427·40
1902	156,325·07	*g* 185,016·58	187,272·79	160,920·24
1903	210,776·28	*h* 195,426·42	198,820·49	168,502·64
Total	748,462·28	913,694·66	903,115·47	793,629·46

a Includes 2,900·77ozs. dollied and specimens and 275ozs. from unknown tons. *b* Includes 120ozs. of alluvial and 391·12ozs. dollied and specimens. *c* Includes 924·32ozs. dollied and specimens. *d* Includes 796·78ozs. of alluvial and 1,118·34ozs. dollied and specimens. *e* Includes 690·05ozs. of alluvial and 649·32ozs. dollied and specimens. *f* Includes 281·79ozs. alluvial and 969·62ozs. dollied and specimens. *g* Includes 281·57ozs. of alluvial and 901·60ozs. dollied and specimens. *h* Includes 232·98ozs. of alluvial and 2,204·34ozs. dollied and specimens. *i* Included with Coolgardie returns prior to 1st May, 1896.

YILGARN GOLDFIELD.

The Yilgarn field was proclaimed on the 1st October, 1888; its boundaries were amended by proclamation gazetted on the 20th March, 1896, taking effect from the 15th April of that year. It embraces an area of 15,593 square miles:—

Bounded by lines starting from a point 90 miles south of a cairn, H 26, on Koorarawalyee Granite Rock, and extending west to a point due south of a point 10 miles west of a cairn on Yorkrakine Granite Rock; thence

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north to the south-east corner of the Yalgoo Goldfield; thence east-south-east to a point about 50 miles due west from a cairn marked NB (conjoined) 1, near Wangine Soak; thence south through the before-mentioned cairn H 26 to the starting point.

The occurrence of gold in what is now the Yilgarn Goldfield would seem to have been made known by Mr. Glass, of Moujakine, in the year 1887.

The principal mining centres of the field are Hope's Hill, Parker's Range, Southern Cross, and Mount Jackson.

The whole Yilgarn field seems to follow one anticlinal fold in the country, the centre of which is exposed at Golden Valley, where the reefs dip both east and west, while the country is hard, and the stone carries much copper.

Hope's Hill and Southern Cross are on the western side of this fold, while Blackborne's is on the other side of a synclinal still further west, where the reefs dip to the east. All along this line of country the stone is highly mineralised, containing carbonate of iron and chlorite.

The output of the field for 1903 shows a slight increase over that of 1902, and there seems to have been a revival in activity; the population during the year increased by 28 per cent. The total yield of the field up to the end of 1903 amounts to 241,896ozs.

The following table shows the yield of the Yilgarn Goldfield up to the close of 1903:—

Yield of the Yilgarn Goldfield.

Year.	Ore Crushed.	Yield of Gold therefrom.	Gold Exported and received at Perth Mint.	
			Gross Weight.	Fine Contents.
	tons.	ozs.	ozs.	ozs.
1889			1,858·50	1,662·61
1890			2,277·00	2,036·99
1891			12,833·30	11,480·61
1892			21,209·49	18,973·91
1893	a174,925·00	b 94,194·60	75,744·55	67,760·73
1894			31,498·38	28,178·31
1895			19,747·75	17,666·25
1896			16,565·25	14,819·20
1897	35,988·00	17,072·82	17,994·48	16,097·78
1898	27,807·35	11,769·40	11,696·18	10,463·35
1899	33,403·18	16,371·78	16,805·04	15,033·71
1900	54,403·10	29,155·42	29,418·10	26,317·30
1901	26,529·00	c 26,587·41	29,488·07	26,727·10
1902	41,218·50	d 23,129·69	25,877·53	22,236·11
1903	50,623·50	e 23,615·24	26,856·28	22,761·00
Total	444,897·63	241,896·36	339,869·90	302,214·93

a Details not available. b Details not available, but includes 738·18ozs. dollied and specimens. c Includes 23·18ozs. dollied and specimens. d Includes 8·30ozs. of alluvial and 6ozs. dollied and specimens. e Includes ·50ozs. of alluvial and 211ozs. dollied and specimens.

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COOLGARDIE GOLDFIELD.

The Coolgardie Goldfield was proclaimed on the 6th April, 1894; its boundaries were amended by proclamation gazetted on the 20th March, 1896, taking effect from the 15th April of that year. It embraces an area of 11,974 square miles, and is defined by the authorities as being:—

Bounded by lines starting from the north-east corner of the Yilgarn Goldfield (which is a point about 50 miles west from a cairn marked NB1, near Wangine Soak) and extending south about 118 miles through a cairn H26 on Koorarawalyee Granite Rock; thence east about 133 miles through the summit of a granite rock near the 50-Mile Soak, on the Dundas and Lake Lefroy Road; thence north about 48 miles to a point 35 miles east of the south-east corner of Hampton Plains Location 48; thence west 35 miles to the south-east corner of the above-mentioned Location; thence along the boundaries (surveyed) of Location 48, westerly 443 chains 91 links, northerly 564 chains 87 links to the south-east corner of Location 51; thence along the boundaries (surveyed) of that Location westerly 160 chains, southerly 60 chains, westerly 119 chains 87 links to the south-west corner of Location 51; thence northerly 400 chains along the westerly boundary of Location 51, and the eastern boundary of Location 53 to the north-east corner of Location 53; thence along a surveyed line 324° 16′ 36 miles 1,481 links; thence north 30 miles 47 chains 46 links along a surveyed line to a tree, R3, near Cane Grass Swamp on the 90-Mile Road; thence westerly about 50 miles to the starting point.

Previous to 20th March, 1896, the Coolgardie Goldfield embraced the present Coolgardie, East Coolgardie, North-East Coolgardie, and Broad Arrow Goldfields, all of which, together with the present Yilgarn field, were originally known as the Yilgarn Goldfield.

Coolgardie Goldfield, as at present constituted, was officially declared on the 20th March, 1896, and, for purposes of administration, was eventually divided into the Coolgardie and Kunanalling Districts.

The geological features of this area are marked by a mass of intrusive granite on the west, succeeded by a belt of hornblende and talcose schists, the whole being intersected by dykes of both basic and acidic rocks. The acid eruptive rocks, which, as a rule, follow the strike of the schists, in all probability emanate from the main granite mass, as cases occur in which a gradual passage from the latter can be identified. Quartz reefs are often intimately associated with the acidic dykes, and in some cases the latter gradually pass into pure quartz at their extremities. As a rule, these quartz veins are non-auriferous.

The schistose rocks, which are hornblendic, or occasionally talcose, seem to result from the surface weathering of amphibolites. The general strike varies from north 20° west and south 20° east to north 20° east and south 20° west, the dip being from 30° to 60° to the east; more rarely the beds dip west, but such is of local occurrence.

The diorites and andesites form both bosses and dykes, and are found invading both the granite and the schist.

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In certain portions of the field both the granite and schistose rocks are covered with a variable thickness of their own weathered *débris* and other superficial deposits. These superficial deposits extend over a very large portion of Coolgardie; they vary in thickness from a few inches up to several hundred feet, as in Rollo's Bore.

Ancient water channels exist in the vicinity of Coolgardie, about eight miles from the township; one of these had been pierced by a bore to a depth of 162 feet.

The gold obtained from Coolgardie has been derived from three principal sources, viz., alluvial deposits, lode formations, and quartz reefs. The gold from the recent superficial deposits presents all the usual characters. Unfortunately there are no data available by which the amount of alluvial gold obtained in the early days from the Coolgardie Goldfield can be deduced. The "lode formations," as a rule, consist of schistose rocks traversed by a network of quartz leaders; the formations appear to possess no sharply defined boundaries, unless in exceptional cases, the limits of the deposits being defined by purely technical considerations. A great deal of gold seems to have been derived from these formations; but, owing to the way the returns are supplied, it has not been possible to separate the yield of the formations from that of the quartz reefs proper. The quartz reefs trend generally north and south, and have a dip of from 60° to 80° to the east.

Many of the quartz reefs in the neighbourhood of Coolgardie stand up from the surface like walls of masonry, 15 or 20 feet high, having resisted the denuding action of the atmosphere better than the enclosing country rocks.

There are two distinct varieties of reefs, one closely resembling the lode formations and occurring in large lenticular patches, often forming pronounced outcrops on the surface, and the other of the true fissure type. Of the first class, the reefs on Bayley's Reward Claim, and the Big Blow Mining Lease, No. 35, are the best examples, whilst Sherlaw's Perseverance, and Burbank's Birthday Gift Mining Lease, No. 3252, are examples of the second class.

The principal mining centres of the field are Bonnievale, Burbanks, Coolgardie, Gnarlbine, Londonderry, Red Hill, Widgiemooltha, Balgarrie, Carbine, Carnage, Cashman's, Dunnsville, Kintore, Siberia, and 25-Mile.

A decreasing tendency has been shown in the production of the field for several years, and the output, for 1903, of 84,303ozs. shows a decrease of four per cent. compared with that for 1902. The total gold reported to the Mines Department up to the end of 1903 amounts to 724,256ozs.

A State Battery is to be erected, which it is expected will improve results.

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The following table shows the yield of the field up to the close of 1903:—

Yield of the Coolgardie Goldfield.

Year.	Ore Crushed.	Yield of Gold therefrom.	Gold Exported and received at Perth Mint.	
			Gross Weight.	Fine Contents.
	tons.	ozs.	ozs.	ozs.
1894			b 105,329·82	94,227·58
1895	a 33,352·45	a 74,181·76	125,105·94	111,919·21
1896			69,135·19	61,848·03
1897	54,251·16	64,791·48	104,306·37	93,312·00
1898	107,622·39	c 99,672·84	127,227·06	113,816·75
1899	154,893·14	d 126,290·04	141,170·08	126,290·11
1900	133,087·75	e 102,413·01	119,781·46	107,155·95
1901	121,646·91	f 84,744·43	88,600·54	80,304·56
1902	96,316·15	g 87,859·69	97,477·20	83,760·46
1903	105,825·58	h 84,303·27	90,854·23	77,000·01
Total	806,995·53	724,256·52	1,068,987·89	949,634·66

a Details not available. b Included with Yilgarn prior to 5th April, 1894. c Includes 52·71ozs. of alluvial and 1,158·96ozs. dollied and specimens. d Includes 1,562·95ozs. of alluvial and 1,713·54ozs. dollied and specimens. e Includes 1,624·76ozs. of alluvial and 320·06ozs. dollied and specimens. f Includes 1,259·65ozs. of alluvial and 1,739·76ozs. dollied and specimens. g Includes 665·55ozs. of alluvial and 550·61ozs. dollied and specimens. h Includes 759·33ozs. of alluvial and 1,743·61ozs. dollied and specimens.

BROAD ARROW GOLDFIELD.

The Broad Arrow field, declared by proclamation gazetted on the 17th November, 1896, to take effect from the 20th of that month, embraces an area of 590 square miles, and is defined by the authorities as being:—

Bounded by lines starting from Survey Station R3; thence east about 17 miles 30 chains to a point north of the most northerly corner of the East Coolgardie Goldfield; thence south about 29 miles 70 chains to that corner; thence about 234° 51′ 14½ miles to the 40-Mile post on part of the eastern boundary of the Coolgardie Goldfield; thence about 324° 46′ 9 miles 32 chains 44 links; thence north 30 miles 47 chains 56 links to the starting point

The geological features and mode of occurrence of the ore deposits of this field bear a strong similarity to those of Coolgardie.

The gold produced from this field has been derived from three sources, viz., alluvial deposits, lode formations, and quartz reefs. The gold from the alluvial deposits presents all the usual characters. The lodes, so far as observations have been carried, are usually banded, and practically distinguishable from the country rock only by their auriferous character. The quartz reefs, which invariably

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occur in intimate association with the acid eruptive dykes, are of two distinct varieties. The first occur as lenticular patches, from which small quartz veins emanate in all directions. These branching veins appear to be richer. The second type are those banded rocks which consist of alternating layers of crypto-crystalline quartz and hematite. The proportion of oxides of iron varies from a practically pure hematite to a quartz rock, through which such small quantities of hematite are disseminated as to give it a brown or bluish appearance. These banded rocks seem to have been permeated with secondary silica, which has also penetrated the surrounding rocks. Although these banded quartzites have proved auriferous, none of them have so far shown themselves to be payable; in the circumstances that these banded quartz rocks are a possible source of gold, they are identical with the quartzites of Peak Hill (to which reference has been made on an earlier page) and of Mount Margaret.

The principal mining centres of the field are Bardoc, Black Flag, Broad Arrow, and Paddington.

After several years of declining output, a considerable advance is shown by the record of the field for 1903; the yield of 29,969ozs. being an increase of 32 per cent. over that for the preceding year. The total output up to the end of 1903 amounted to 236,267ozs.

The following table shows the yield of the field up to the close of 1903:—

Yield of the Broad Arrow Goldfield.

Year.	Ore Crushed.	Yield of Gold therefrom.	Gold Exported and received at Perth Mint.	
			Gross Weight.	Fine Contents.
	tons.	ozs.	ozs.	ozs.
1896	*a* 1,536·20	*b* 9,129·25	...	...
1897	19,636·30	*c* 14,464·54	*j* 4,159·27	3,720·87
1898	32,004·06	*d* 27,726·43	24,631·44	22,035·17
1899	59,976·40	*e* 48,194·38	44,524·29	39,831·22
1900	73,493·17	*f* 52,433·32	47,860·59	42,815·57
1901	44,740·13	*g* 34,675·44	29,104·78	26,379·50
1902	23,684·85	*h* 19,675·20	18,380·47	15,794·01
1903	35,826·15	*i* 29,969·13	27,665·13	23,449·53
Total	290,897·26	236,267·69	196,325·97	174,023·26

a Complete details not available. *b* Complete details not available; includes 250ozs. from unknown tons. *c* Includes 27·20ozs. dollied and specimens. *d* Includes 1,483·59ozs. of alluvial and 270·42ozs. dollied and specimens. *e* 114·21ozs. of alluvial and 197·93ozs. dollied and specimens. *f* Includes 1,470·36ozs. of alluvial and 268·44ozs. dollied and specimens. *g* Includes 1,229·52ozs. of alluvial and 161·30ozs. dollied and specimens. *h* Includes 984·43ozs. of alluvial and 162·25ozs. dollied and specimens. *i* Includes 2,940·43ozs. of alluvial and 68·50ozs. dollied and specimens. *j* No details available prior to 1st September, 1897.

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EAST COOLGARDIE GOLDFIELD.

This comparatively small field, the most productive in Australia, embraces an area of 632 square miles. It was declared by proclamation gazetted on the 21st September, 1894, to take effect from the 1st October of that year; its boundaries were amended by proclamation gazetted on the 20th March, 1896, to take effect from the 15th April following. It is defined by the authorities as being—

Bounded by lines starting from a mile-post on the eastern boundary of the Coolgardie Goldfield, 40 miles southerly from Survey Station R3 and extending 144 degrees 46 minutes 26 miles 62 chains 37 links along a surveyed line to the north-east corner of Location 53; thence southerly along the eastern boundary of Location 53 and the western boundary of Location 51 to the south-west corner of Location 51; thence along the boundaries of that location easterly 119 chains 87 links, northerly 60 chains, easterly 160 chains to a point on the western boundaries of Location 48, southerly 564 chains 87 links, easterly 443 chains 91 links to the south-east corner of that location; thence easterly about 7 miles 65 chains to a point south of the south-east corner of Location 45; thence north to the said corner; thence north along the eastern boundary of Location 45, 4 miles, to its north-east corner; thence about 342 degrees 10 minutes about 1 mile 64 chains to the south-east corner of Location 44; thence along the eastern boundary of Location 44 to its north-east corner; thence 321 degrees 35 minutes about 30 miles 53 chains to a point bearing about 54 degrees 50 minutes from the 40-mile post on the eastern boundary of the Coolgardie Goldfield; thence about 234 degrees 50 minutes about 14¼ miles to the starting point.

Kalgoorlie, the official centre of the East Coolgardie Goldfield, was in the first instance called Hannan's, after Patrick Hannan, the original discoverer of the field; the other principal mining centres are Boulder, Boorara, and Feysville.

The principal topographical feature of the field consists of a low broken Range, of which Mount Charlotte, 1,378 feet above sea-level, forms the highest summit, and which trends generally north-north-west from the head of Hannan's Lake. This line of comparatively low hills diminishes in altitude from Mount Charlotte to a mere ridge, which gradually merges into the flat ground surrounding the lake and forms the main waterparting of the district. To the eastward, the country extends in a wide, gently sloping valley, with a southerly fall, flanked by a line of low hills some six or seven miles distant; to the westward again is another valley of about two miles in width.

By far the larger portion of the field is covered with a mantle of reddish loamy soil and other superficial accumulations of variable thickness. These superficial deposits consist of ironstone gravels and cement, passing in certain isolated localities into practically pure brown hematite. Some of the surface deposits have proved to be highly auriferous in places.

The rocks of the field consist of:—

(1.) Amphibolites and other derivatives, including most of the lode stuff

(2.) New eruptives, both acid, intermediate, and ultra-basic.

(3.) Sedimentary rocks

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The amphibolites, which form not only the country rocks of the productive ore-bodies of Kalgoorlie, but also, in a much altered form, the greater number of the "lode formations" themselves, possess the highest interest. Owing to the varying and sometimes extreme alteration that they have undergone, the rocks present an almost endless variety of form and (within certain limits) composition. They appear to resemble very closely the greenstone schists of the south shore of Lake Superior, North America, which are associated with important deposits of iron ore. The Kalgoorlie amphibolite rocks are of four main types, viz., massive and foliated amphibolites, massive and foliated greenstones (chlorite-rock), chlorite schist, and massive and foliated siderite-rock.

The minerals which have been recognised in these rocks are hornblende, plagioclase, orthoclase, quartz, limonite, and magnetite, all of which may be original constituents, or wholly or partially secondary, together with the undoubtedly secondary minerals chlorite, epidote, zoisite, sericite, leucoxene, rutile, calcite, dolomite, siderite, and pyrites, with occasionally lollingite, gold, etc.

All the amphibolites and other derivatives are portions of the one mass, and have originally been one and the same. No remnants of that original rock being left unaltered, its exact nature cannot be determined. That it was an igneous rock appears certain from the presence of limonite, hornblende, and areas of micropegmatite, and from the absence of fossils or water-worn inclusions. It may have been a diabase or plagioclase-augite rock. The original rock has been metamorphosed in three ways: By molecular rearrangement, with the production of secondary hornblende; mechanically, many of the minerals being fractured or crushed, and more or less foliation set up; chemically, by the absorption of water, carbonic acid, sulphur, etc., resulting in a complete destruction of original minerals and the formation of secondary chlorite, calcite, quartz, etc. The so-called "lode formations" are in most cases merely bands of this igneous rock which have been permeated by solutions of the precious metals.

Traversing the main mass of amphibolite and older sediments are several intrusive masses of felspar-porphyry, porphyrite, and peridotite.

Surrounded on all sides by the igneous rocks, and dipping at a high angle, are a series of sedimentary rocks, ranging on the one hand from a soft shale to a jasperoid slate, and on the other from a sandstone to a flinty quartzite. The effect of metamorphism on these rocks has been as varying in its intensity as on the amphibolites. Soft grey shales and ironstones pass into fine grey or graphitic slates, in which secondary silification has sometimes gone on up to the point of converting the rock into an opaque banded jasper. Graphite to the extent of 5 per cent. or more is a frequent constituent in the slates. It may owe its origin to the alteration of organic matter

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Perseverance Gold Mine, Boulder, East Coolgardie District.

Ivanhoe Gold Mine, Boulder, East Coolgardie District.

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originally contained in the rocks, or to the subsequent [illegible] of vapours & hydrocarbons into the rocks. A peculiar feature in the graphitic shales are spherical nodules of pyrite from [illegible] up to an inch or more in diameter, which are frequently enclosed in them.

Of siliceous sediments, soft sandstones are of rare occurrence but narrow bands of sandy material do occur with the shales. Flinty quartzite is of frequent occurrence, ranging in composition from almost pure silica to various mixtures of quartz, clay, and iron oxides, the latter, however, being seldom found in notable quantities.

Breccias occur in several parts of the field.

The newer sediments are of two kinds, chemical and mechanical. The former includes salt, travertine, siliceous sinter, and laterite; the latter, sand, clay, and ironstone gravel.

The lodes of Kalgoorlie consist of a series of almost vertical banded schistose formations (merely country rock more or less altered by dynamic changes) which have a general trend of from north 40° west to north 50° west. These deposits are lenticular in habit, the lenses being often of great length. Instances occur which go to prove that some of these may reach over half a mile in length. At times, however, the lateral continuity of the lenses is interrupted by faults of very variable downthrow. As a general rule the ore deposits have no well-defined walls, but seem to pass insensibly into the surrounding rock. The lodes are often traversed by a network of [illegible] veins which [illegible] in all directions. There is no doubt evidence affording the fact that the rocks have been subjected to prolonged dynamic [illegible] [illegible] [illegible]

Outside prospecting is still being carried on, particularly at the north end of the field in the neighbourhood of Boorara.

The following table shows the yield of the East Coolgardie Goldfield up to the close of 1903:—

Yield of the East Coolgardie Goldfield.

Year.	Ore Crushed.	Yield of Gold therefrom.	Gold Exported and received at Perth Mint.	
			Gross Weight.	Fine Contents.
	tons.	ozs.	ozs.	ozs.
1896	47,026·34	*a* 143,828·70	*i* 85,287·06	76,297·42
1897	117,565·72	*b* 296,764·11	300,037·24	268,411·95
1898	264,324·76	*c* 422,391·86	450,312·27	402,847·31
1899	466,869·09	*d* 860,371·72	923,617·70	826,264·21
1900	491,720·00	*e* 737,970·98	810,906·78	725,433·53
1901	693,828·73	*f* 991,378·20	1,033,669·64	936,883·49
1902	842,185·61	*g* 1,118,615·71	1,172,404·84	1,007,426·94
1903	906,793·51	*h* 1,275,627·82	1,358,374·81	1,151,238·24
Total	3,890,313·76	5,846,949·10	6,134,610·34	5,394,803·09

a Includes 500ozs. from unknown tons. *b* Includes 46·15ozs. of dollied and specimens. *c* Includes 148ozs. of dollied and specimens. *d* Includes 5,503·70ozs. of alluvial and 29·56ozs. dollied and specimens. *e* Includes 2,295·36ozs. of alluvial and 2,019·24ozs. dollied and specimens. *f* Includes 1,331ozs. of alluvial and 1,247·85ozs. dollied and specimens. *g* Includes 3,063·89ozs. of alluvial and 6,807·18ozs. dollied and specimens. *h* Includes 752·94ozs. of alluvial and 1,013·45ozs. dollied and specimens. *i* Included with Coolgardie prior to 1st May, 1896.

NORTH-EAST COOLGARDIE GOLDFIELD.

This Goldfield was declared by proclamation gazetted on the 20th March, 1896, to take effect from the 15th April of that year; its boundaries were amended during the same year by proclamation gazetted on the 13th November, to take effect from the 20th of the same month. It embraces an area of 21,542 square miles, and, according to the authorities, it is comprised by—

"Lines starting from a point situate about 17 miles 30 chains east of Survey Station R3; thence south about 29 miles 70 chains to the most northerly corner of the East Coolgardie Goldfield; thence about 141 degrees 35 minutes about 30 miles 53 chains to the north-east corner of location 44; thence along the eastern boundary of that location to its south-east corner; thence about 162 degrees 10 minutes about 1 mile 64 chains to the north-east corner of Location 45; thence along the eastern boundary of that location to its south-east corner; thence south to a point 7 miles 65 chains east from the south-east corner of Location 48; thence east about 27 miles 15 chains; thence south about 48 miles to the south-east corner of the Coolgardie Goldfield; thence east to the 125th meridian of east longitude; thence north along that meridian to a point east of Survey Station R3 aforesaid; thence west to the starting point.

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For administrative purposes the field is divided into three districts:—Kanowna (White Feather), Bulong (I O U), and Kurnalpi.

Kanowna.—The fundamental rocks of the Kanowna district are chlorite, talcose, and serpentinous schists, invaded by dykes of acid eruptive rocks, which have a prevailing north-easterly strike and an easterly dip. The schists, so far as has been disclosed by mining operations, are all in an advanced stage of decomposition. They have proved to be highly auriferous in places. The granitic rocks which contain gold in appreciable quantity are reticulated by interlacing quartz veins, which are also auriferous; these appear to have been prospected with considerable success.

Considerable interest, however, at Kanowna attaches to the alluvial leads, which have been extensively worked. The most prominent of these is the North Lead, which lies in a natural depression that has been traced from the Cemetery to G.M.L. 918. The North Lead lies in an old watercourse carved out of the older rocks, and has been proved to be not merely a simple isolated run of auriferous gravel, but part of a series of old stream deposits, which took their rise in the comparatively elevated ground to the east and flowed in a general westerly direction.

The lead trends generally northwards as far as the G.M.L. 923, when its course is suddenly deflected to the east. It is joined near the Birthday Gift Claim by what is known as Wilson's Gully Lead, which enters from the south. Some distance below the junction the North Lead loses itself in an extensive flat, which may prove to be merely a lake-like expansion of its channel. The connection of the Q.E.D. Lead on the north, although it trends in such a direction as to fall into the North Lead, has not yet been definitely proved. All things point to such a connection, though it may be that the lead has been lost by denudation.

The width of the old stream varies from two to 80 feet, having an average, according to departmental observations, of about 15 feet. The thickness of the deposit in the old channel varies from a few inches up to as much as 90 feet. The fall of the lead is about at the rate of 40 feet to the mile.

The deposits filling the old watercourse naturally vary somewhat in different portions. They consist first of a variable thickness of surface loams, etc., succeeded by ironstone gravels partially cemented in places by kaolin and oxide of iron into solid rock. Beneath this lies a bed or beds of practically pure kaolin ("pug"), and a varying thickness of a pebbly quartz wash. The wash contains rounded and subangular pebbles of quartz, which, in the upper portion of the deposit, is often associated with kaolin and sand. This quartz wash is cemented by secondary silica into a hard, compact rock, which, in hand specimens, might easily be mistaken for quartzite.

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So far as mining operations have, up to the present, been carried out, it would seem that the whole of the detrital deposits have not proved auriferous. Most of the alluvial gold has been won from the pebbly quartz wash, although the overlying kaolin ("pug") and ironstone gravel have also yielded a certain quantity.

The ultimate derivation of the gold in the North Lead is from the quartz veins and lodes (upon which the wash directly reposes in places) by which the crystalline rocks are traversed; for the gold is not exclusively in the form of grains, scales, etc., but is found occurring in the quartz pebbles themselves.

In addition to what may be called detrital gold, there is another massive, arborescent, or coarsely crystalline form which occurs, filling certain irregular cracks, and covering cleavage planes or shrinkage cracks so as to present the appearance of painted surfaces.

The mode of occurrence, associations, and character of this gold all point to a secondary origin; and it is of importance to note that this, what may be called secondary gold, has been deposited from solution, not only in the alluvium and other superficial deposits, but also in the zone of decomposition of the bed-rock. These secondary forms, which result in the superficial enrichment of many auriferous deposits, are a common feature in the mineral fields of the State.

Of the age of the North Lead there is no evidence available at the present time. The fact that at a date subsequent to its formation a sufficient length of time has elapsed to allow of the lead being sealed up by great accumulations of superficial deposits (some of which have been consolidated into solid rock) may point to considerable geological antiquity.

There are no data available by which the average fineness of the gold from the North Lead can be obtained.

That many other similar leads probably exist is obvious from the geological structure of the district, though, owing to the completeness by which they have been sealed up by the more recent accumulations, they can only be tapped by a judicious system of prospecting.

It is impossible to arrive at the gold yield of the portion of Kanowna traversed by the old watercourse, owing to there being no separate returns furnished by the claimholders on the North Lead. The returns, which are appended, show that up to the end of 1903 the lodes from Kanowna yielded 218,814·30ozs. of gold by crushing 251,640·20 tons of ore. The alluvial deposits, the gravels, yielded 113,574·92ozs. of gold, and 112,786·42 tons of cement crushed were responsible for 116,535·81ozs. From these data it will be seen that the alluvial deposits turned out 51 per cent. of the total production.

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Gold Production of Kanowna.

Year.	Ore Crushed.	Yield of Gold therefrom.	Rate per ton.
I.—Lodes.	tons.	ozs.	ozs.
Previous to 1898	27,365·55	28,243·77	1·03
1898	24,838·10	20,892·00	·83
1899	20,735·50	19,680·02	·94
1900	43,573·05	29,674·01	·68
1901	38,073·75	33,915·42	·89
1902	40,192·10	42,181·67	1·04
1903	56,862·15	44,227·41	·77
Total	251,640·20	218,814·30	·87
II.—Alluvial Deposits.			
(a.)—*Gravel.*			
Previous to 1898	...	10,611·92	...
1898	...	63,548·02	...
1899	...	19,462·29	...
1900	...	8,931·83	...
1901	...	5,778·41	...
1902	...	3,410·02	...
1903	...	1,832·43	...
Total	...	113,574·92	...
(b.)—*Cement.*			
Previous to 1898	*	*	...
1898	45,983·22	68,183·54	1·48
1899	41,429·95	35,494·31	·85
1900	15,870·00	8,776·82	·55
1901	2,485·75	1,176·44	·47
1902	3,464·50	1,373·58	·39
1903	3,553·00	1,531·12	·43
Total	112,786·42	116,535·81	1·03

* No data.

Bulong.—The Bulong, or I.O.U., Mining District never has been the subject of geological examination, so that the information is far from complete. The country rock is described by Mr. S. Göczel, a former member of the staff, as being partly diorite and partly diabase, both having been much subject to decomposition. A large North and South reef is said to form an important feature; two miles to the West of this is a stretch of country, about two miles long, in which several gold-bearing lodes occur.

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On the ground held by the Mystery Gold-Mining Company, large quantities of gold have been obtained from the superficial covering of a ferruginous deposit (laterite) which covers such extensive areas in the State. The deposit is described as a gritty limonite, interbedded with clayey ironstone.

The alluvial deposits of Bulong, some of which have been worked at a depth of over 100 feet, yielded, up to the close of 1903, 26,517·53ozs. of gold. Several leads have been worked, but as they have never been geologically mapped, details in connection with them are wanting.

Kurnalpi.—Of the Kurnalpi District very little information is available, but prospecting work is continuing. At Mulgabbie, an outlying centre about 35 miles to the north, some telluride minerals, chiefly petzite, were recently discovered in one of the deposits; sufficient development, however, has not yet been accomplished to thoroughly determine the value of the find.

The output of the North-East Coolgardie, which has produced so much ore in the past, was, during 1903, 62,920ozs. and, as compared with 1902, showed a decrease of four per cent. This is largely accounted for by a decrease in the output from the leads of Kanowna. The total gold reported to the Mines Department up to the end of 1903 amounted to 597,122ozs.

The following table shows the yield of gold up to the close of 1903:—

Yield of the North-East Coolgardie Goldfield.

Year.	Ore Crushed.	Yield of Gold therefrom.	Gold Exported and received at Perth Mint.	
			Gross Weight.	Fine Contents.
	tons.	ozs.	ozs.	ozs.
1896	5,682·30	*a*8,975·95	*i*4,113·18	3,679·63
1897	28,546·25	*b*40,453·10	32,905·82	29,437·40
1898	80,095·83	*c*170,441·73	125,240·49	112,039·58
1899	82,716·30	*d*112,825·45	81,171·18	72,615·37
1900	70,713·05	*e*70,745·86	52,129·12	46,634·47
1901	51,978·25	*f*63,651·70	50,556·53	45,822·74
1902	57,181·10	*g*67,108·60	54,540·57	46,865·74
1903	70,949·05	*h*62,919·74	47,733·54	40,454·74
Total	447,862·13	597,122·13	448,390·43	397,549·67

a. Includes 150ozs. dollied and specimens. *b*. Includes 10,917·85ozs. of alluvial and 886·23ozs. dollied and specimens. *c*. Includes 69,069·76ozs. of alluvial and 1,115·57ozs. dollied and specimens. *d*. Includes 34,527·80ozs. of alluvial and 1,648·87ozs. dollied and specimens. *e*. Includes 16,099·57ozs. of alluvial and 4,623·54ozs. dollied and specimens. *f*. Includes 10,498·93ozs. of alluvial and 3,325·71ozs. dollied and specimens. *g*. Includes 5,923·09ozs. of alluvial and 2,291·23ozs. dollied and specimens. *h*. Includes 4,323·54ozs. of alluvial and 2,100·90ozs. dollied and specimens. *i*. Prior to 1st May, 1896, included with Coolgardie.

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DUNDAS GOLDFIELD.

This field, the most southerly of the Eastern fields, was proclaimed on the 31st August, 1893, its boundaries being subsequently amended by proclamation gazetted on the 22nd August, 1902, to take effect from the 1st September of that year. It embraces an area of 11,500 square miles, which, according to the authorites, is defined as—

Commencing at the south-east corner of the Coolgardie Goldfield; thence east about 42½ miles; thence south about 66 miles; thence west about 173 miles, passing through the 75-mile post on the Dundas-Esperance Road; thence north about 66 miles to the south-west corner of the said Coolgardie Goldfield; thence east about 132½ miles along its southern boundary to the starting point.

Although the area proclaimed as a goldfield is of considerable extent, the actual portion over which gold has been discovered is small, and seems to be confined to the Dundas Range and its northern extension; or, in other words, the belt of land that lies between Lake Cowan and Lake Dundas.

Gold was first discovered in the year 1892, at the southern end of the Dundas Range; but as the reefs did not prove to be very rich, little mining is being carried on at that locality at the present time.

It seems that Mr. Moir, of Fanny's Cove, was the first to detect gold in the country now embraced by this field. The discovery was made in the alluvium of one of the creeks when this gentleman was engaged in searching for pastoral lands. No effort would appear to have been made to give further attention to the district until some years later, when Mr. Moir organised a prospecting party, which, however, was not successful. About the same time further prospecting was carried out by other parties, which resulted in the discovery of a rich reef called the "May Bell" and another called the "Scotia."

The rocks of the gold-bearing belt are similar to those of the Coolgardie District, and, like that locality, the richest lodes are situated in the contact zone, upon the eastern side of the granite. The belt is dislocated and considerably disturbed in places by the intrusion of large diorite dykes, which rise as rough, reddish black hills here and there, running in an almost east and west direction.

The principal mining centres of the field are Dundas, Norseman, and Peninsula.

There are about three distinct main lines of auriferous lodes, most of which dip at an angle of about 45 degrees, and vary considerably in size and richness.

The output of the field for 1903 was 40,173·60ozs., which, as compared with that for 1902, 34,750·60ozs., shows an increase of 16 per cent., and the average yield per ton of ore treated was 1·55ozs.; the increase is, therefore, due rather to a higher grade of ore than to a larger output.

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The following table shows the gold yield of Dundas up to the close of 1903 :—

Yield of the Dundas Goldfield.

Year.	Ore Crushed.	Yield of Gold therefrom.	Gold Exported and received at Perth Mint.	
			Gross Weight.	Fine Contents.
	tons.	ozs.	ozs.	ozs.
1893	a2,923·00	a3,979·90	i147·97	132·77
1894			228·38	204·31
1895			241·90	216·40
1896			4,350·31	3,891·77
1897	16,979·98	b19,283·52	19,310·81	17,275·36
1898	30,928·35	c36,798·48	32,031·82	28,655·52
1899	59,379·30	d44,213·30	45,164·95	40,404·36
1900	49,014·50	e41,083·63	40,687·56	36,398·91
1901	38,373·00	f37,084·09	38,796·25	35,163·62
1902	26,123·75	g34,750·60	36,210·99	31,115·47
1903	25,953·00	h40,173·60	41,553·90	35,217·41
Total	249,674·88	257,367·12	258,724·34	228,675·59

a. Details not available. b. Includes 77·50ozs. dollied and specimens. c. Includes 5·60ozs. dollied and specimens. d. Includes 142·75ozs. of alluvial and 146·18ozs. dollied and specimens. e. Includes 166·13ozs. of alluvial and 35·48ozs. dollied and specimens. f. Includes 623·82ozs. of alluvial and 180·05ozs. dollied and specimens. g. Includes 435·32ozs. of alluvial and 1,110·43ozs. dollied and specimens. h. Includes 503·74ozs. of alluvial and 793·94ozs. dollied and specimens. i. Prior to 1893 included with Yilgarn.

DONNYBROOK GOLDFIELD.

This little goldfield is situated between Geographe Bay and the Greenbushes Tinfield. It was declared by proclamation gazetted on the 17th November, 1899, to take effect from the 27th of that month, and comprises an area of 102 square miles. The authorities define its boundaries as follows :—

Starting from the south-western corner of Reserve 6321 (Covenley Townsite); thence north about 60 chains to the Boyanup-Bridgetown Railway Reserve; thence by the western boundary of said Railway Reserve in a general north-westerly direction about 14½ miles to its intersection with the eastern boundary of Wellington Location 239; thence north about 10 chains to the left bank of the Preston River; thence by said river in a general north-easterly direction about two and a-quarter miles to the north-eastern corner of Reserve 645A; thence north about three miles; thence west about seven miles to the eastern boundary of Boyanup-Bridgetown Railway Reserve; thence by said Railway Reserve in a general south-easterly direction about three and three-quarter miles to a point north of north-west corner of Wellington Location 836; thence south about 13½ miles; thence east about nine and a quarter miles to the point of commencement.

Donnybrook is situated on the Bunbury and Bridgetown Railway, and is 26 miles south-east of Bunbury and 131 miles by rail from Perth. The scene of mining operations is some two miles to the south of the Donnybrook Townsite, on a small branch of the Preston River, in the Blackwood Range. Gold would seem to have been first discovered in 1897, by a party of prospectors searching

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for alluvial gold. Further investigations carried on eventually led to the discovery of auriferous quartz veins, from which most of the gold had originally been shed.

The country rocks of the field consist of massive hornblende and gneissic granites, intersected by a belt of hornblende rock trending north and south, and traceable for some considerable distance in a southerly direction. The width of the belt of dioritic rock varies from a quarter of a mile, though it has never been found to exceed a mile. In hand specimens the rock is found to consist of coarse hornblende crystals, associated with more or less decomposed felspars. The western edge of the dyke has a banded structure, and resembles hornblende schist; in isolated cases it is found occurring as an exceedingly fine-grained and exceptionally hard rock. The granite naturally varies considerably in texture and composition, though, as a whole, it is a hornblende granite. In several localities the hornblende is almost entirely replaced by muscovite mica. Epidote is found occurring as a rock-forming mineral in the granite. Recent developments have shown the existence of extensive deposits of sandstone lying beneath the ubiquitous ironstone gravels. These sandstones, which are usually of a light grey colour, are fine-grained and of an even texture. The maximum thickness attained by the sandstone is not less than 150 feet.

The quartz reefs all occur in the granite to the west of the diorite, always in close proximity to the junction of the two rocks. The general strike of the reefs is a little to the west of north and east of south, with a high dip to the east. Mining operations have shown that payable quartz reefs occur in the sandstone as well as in the unaltered granite.

Some of the gold from Donnybrook occurs in the filmy arborescent form, which points to a secondary origin.

The output of the field for 1903 amounted only to 58ozs., and mining is practically at a standstill; a little prospecting with diamond drills is being done on one property.

The following table shows the yield of the field since 1898:—

Yield of the Donnybrook Goldfield.

Year.	Ore crushed.	Yield of Gold therefrom.	Gold Exported and received at Perth Mint.	
			Gross Weight.	Fine Contents.
	tons.	ozs.	ozs.	ozs.
1898	18·00	14·65	*b*	*b*
1899	294·80	*a* 511·49	506·11	452·76
1900	360·00	453·10	265·55	237·56
1901	48·50	3·86	4·64	4·20
1902	532·00	100·73	72·83	62·58
1903	400·00	58·05	97·52	82·64
Total	1,653·30	1,141·88	946·65	839·74

a Includes 32·10ozs. of alluvial. *b* No details available prior to 1st March, 1898.

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PHILLIPS RIVER GOLDFIELD.

The discovery of gold-bearing reefs in the Phillips River Mining District led to its being declared a goldfield in September, 1900, the proclamation being gazetted on the 21st, to take effect from the 14th of that month. The boundaries were amended by proclamation gazetted on the 22nd of August, 1902, to take effect from the 1st of September of that year, according to which it embraces an area of 3,850 square miles, circumscribed as follows:—

Starting from a point on the Southern coast, distant about two miles northerly from Red Island; thence north about 80 miles, passing through the summit of Mt. Madden; thence east about 73 miles, along part of the Southern boundary of the Dundas Goldfield to a spot 10 miles easterly from Peak Charles; thence south 33 miles; thence west 40 miles; thence south about 43 miles to the coast; thence westerly along the said coast to the point of commencement.

The field is accessible from the port of Hopetoun, on Mary Ann Harbour, on the south coast.

A few miles to the westward of Hopetoun a bold rock mass rises abruptly, called "East Mount Barren;" this is the eastern end of a range which runs along the coast for a distance of about 40 miles, the rocks of which, consisting of hard, highly crystalline rocks and quartzites, are destitute of metalliferous mineral veins.

From the eastern end of this range is a low semicircular range of schistose rocks, with large pink quartz reefs, traversed by numerous porphyritic dykes, having a well-defined north-west and south-east course, whilst diorite dykes are of less frequent occurrence. These rocks, to judge from their weathered surface, are hornblende and mica-schists, with veins of dolomitic limestone, the latter having probably furnished the magnesian limestone with which the fragments of the rocks are encrusted. This series, so far, has not proved to be metalliferous. In the Phillips River basin a marked change in the nature of the country is at once apparent, and the geological features are in many ways similar to those of the Southern Cross, Coolgardie, and Norseman fields. The rocks prove to be hornblendic and mica-schists, similar to those of the Northern Goldfields, with granite and feldspathic dykes, the latter of which are often garnetiferous, whilst diorite dykes are abundant, and are of considerable extent and size, having apparently exercised a direct influence upon the formation of the mineral veins which occur in this series.

Of the dykes, the granite (locally called "mica bars") are the most recent, for they often cut through the lodes, whilst probably the diorite are next.

The Ravensthorpe Range consists more of the granitic series, being capped by ferruginous sandstones, and is untraversed by diorite dykes or mineral veins; the only dislocation being at the gap where it takes its turn south-east at the apex of the diorite intrusion.

Here, as elsewhere on the southern coast, the metalliferous series has been thrown into a more or less easterly and westerly direction by a great granite intrusion.

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The mines are on the western fall from the Ravensthorpe Range, at the head of the drainage areas of the Steere and Phillips Rivers, and the township of Ravensthorpe, the centre of the field, is about 30 miles, by road, inland from Hopetoun.

The lodes may be divided into two classes—those in which copper is of the greater intrinsic value, and those in which gold is. The first of these have been opened up at three different parts of the field, viz., Ravensthorpe, Mt. Desmond, and Harbour View.

The Ravensthorpe belt of copper lodes strikes in an east-north-east and west-south-westerly direction from the north-west corner of the township, and extends for a distance of five miles; it consists of two groups. The first, or central, lies to the north of the township, and extends continuously for a distance of two miles, after which there is a gap of one and a-half miles, and then the eastern group of leases for a distance of one and a-half miles.

Three miles in a west-south-westerly direction from the westernmost lease of the central group are three large mineral leases, which may be called the western group, upon which the earliest discoveries of mineral upon this field were made; these are possibly upon the same belt, but no definite statement can be made since lines of rock outcrop cannot be traced, owing to the thickness of the superficial deposits; prospecting is therefore rendered difficult, and the presence of reefs and lodes only determined by small fragments upon the surface. This, it may be remarked, is the general characteristic in the Ravensthorpe District of both gold and copper lodes; whilst further it is not at all exceptional to discover, after finding fragments of lode matter upon the surface, that some four to six feet of clay, destitute of stone, has to be passed through before the cap of the lode is encountered.

Although this belt has a general direction east-north-east and west-south-west, the individual lodes, as a rule, strike almost east and west, or a few degrees north of east and south of west, with a general northerly dip; the exception being in some few lodes which dip to the southward.

The following table shows the yield of the Phillips River Goldfield:—

Yield of the Phillips River Goldfield.

Year.	Ore crushed.	Yield of Gold therefrom.	Yield of Gold from smelting Copper Ores.	Total Gold Yield.	Gold Exported and received at Perth Mint.	
					Gross Weight.	Fine Contents.
	tons.	ozs.	ozs.	ozs.	ozs.	ozs.
1900 ...	...	...	39·00	39·00	c	c
1901 ...	192·00	225·73	487·11	712·84	c	c
1902 ...	9,390·25	a8,494·36	...	8,494·36	8,575·86	7,369·09
1903 ...	8,179·75	b 7,688·83	·54	7,689·37	8,941·21	7,577·77
Total	**17,762·00**	**16,408·92**	**526·65**	**16,935·57**	**17,517·07**	**14,946·86**

a Includes 44ozs. of alluvial and 5ozs. dollied and specimens. b Includes 227ozs. of alluvial and 37·67ozs. dollied and specimens. c Details not available.

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COPPER.

Copper mining in Western Australia cannot be said to have made continuous progress, and only a proportion of the output of the mines is reduced to metal in the State. The annual production has shown much variation.

The ores, however, are plentifully distributed throughout the State, particularly in the North-West, but so far, on account chiefly of their not generally carrying any gold, have only been worked in a few localities, notably:—Tambourah, Pilbara District; Whim Creek, Egina, Hong Kong, Croydon, Roebourne, all in the West Pilbara District; Red Hill and Uaroo, in the North-West District; Day Dawn, Murchison District; Geraldine, Northampton, Yandanooka, and Arrino, all in the South-West District; Murrin Murrin, Mount Margaret District; Mulline, North Coolgardie District; Arrow Lake, Broad Arrow District; Boorara, East Coolgardie District; Ravensthorpe, Harbour View, Phillips River District.

Very little has been done in the examination of the copper deposits of the State, but so far they seem to be of two kinds, viz.:—

(1.) True lodes.

(2.) Impregnations and stockworks.

The majority of the workable deposits apparently belong to the former class.

The principal sources of copper ore have been the districts of West Pilbara, Mount Malcolm, Phillips River, Day Dawn, and Northampton; the largest output being that of the West Pilbara District, derived in great part from the locality of Whim Creek.

The yield of the deposits at Murrin Murrin, in the Mount Malcolm district, is next in importance, and a considerable proportion has also been derived from Ravensthorpe in the Phillips River Goldfield, which it appears likely will rise to greater prominence as a copper producing district.

The Phillips River Goldfield has already been referred to in connection with the gold output, and there is a very good record of production both of gold and copper from mines which are only in the first stage of development. The field is a promising one, and efforts are being made by the State to improve the condition of mining where there are a large number of mines not yet sufficiently developed to warrant the large expenditure necessary to put them on the most economical producing basis.

Arrangements have been made by the Government to purchase ores on assay value with a view to erecting a State Smelter, which it is believed, if the field be vigorously developed, will soon be required.

During the latter half of 1903, 3,386 tons of ore had been purchased, of an average value of 15 per cent. copper. The field suffers from want of reduction works, the ores having hitherto had to be shipped to smelters in the Eastern States; this, combined

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with want of railway communication as well as the situation of the field, has rendered the cost of ore realization very high, and it is estimated that no ore that will realize an assay value of less than £8 or £8 10s. per ton will pay for taking out of the mines under present conditions.

The ores found on the field may be divided into—

(1.) Those fit for smelting at once.
(2.) Those requiring milling;

and for complete metallurgical treatment of the product of the different mines would be required smelting, crushing, amalgamating, concentrating, and cyanide processes.

The Yandanooka Mineral District is the most important example of the impregnations and stockworks, where there are several beds of mica schist and porous sandstone carrying malachite, with occasionally a little azurite or cuprite.

The sandstones carry ores of copper in close proximity to the junction of a mass of granite apparently intrusive, but the geological age and relation of the sedimentary and crystalline rocks has not been definitely fixed.

The deposits are in great part impregnations of green and blue carbonates in the form practically of stockworks along certain fissure joints by which the rock is traversed.

The ores average 10 to 12 per cent., are highly siliceous, and are not apparently readily concentrated.

The State's total production of copper and copper ore amounts in value to £269,412, and the production for the year 1903 to £56,541, an increase of £48,451 over that of the previous year, chiefly from the Mt. Malcolm and Phillips River districts. The output from Mt. Malcolm is probably a somewhat inflated yield, but that from Phillips River is due to the State purchase of the ores.

The following tables give a summary of the production of copper ore in the State, and of the exports of ore, matte, and ingots, also the value of the more important imports for the last five years:—

Summary of Copper Ore raised, as reported to the Mines Department

Year.	Day Dawn.	Mt. Malcolm.	[illegible]	Phillips River.	West Pilbara.	Total. Quantity.	Total. Value.
	tons.	tons.	tons.	tons.	tons.	tons.	£
Previous to 1899	[illegible]				[illegible]	[illegible]	[illegible]
1899 ...		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
1900 ...	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
1901 ...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1902 ...		[illegible]		[illegible]		[illegible]	[illegible]
1903 ...		[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
Total ..	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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Quantity and Value of Copper Exports.

Year.	Ore.		Matte.		Ingot.		Total.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	tons.	£	tons.	£	tons.	£	tons.	£
Previous to 1899	10,641·25	166,855·60	...	...	...	...	10,641·25	166,855·60
1899 ...	1,991·05	41,451·75	...	...	...	...	1,991·05	41,451·75
1900 ...	846·11	16,462·00	...	...	248·90	17,475·00	1,095·01	33,937·00
1901 ...	2,660·25	54,903·00	441·10	24,804·00	439·40	31,063·00	3,540·75	110,769·00
1902 ...	288·50	4,986·00	...	...	175·00	7,918·00	458·50	12,904·00
1903 ...	345·80	4,527·00	1,023·80	29,917·00	51·45	3,371·00	1,421·05	37,815·00
Total	16,767·96	289,185·35	1,464·90	54,721·00	914·75	59,826·00	19,147·61	403,732·35

Value of Copper Imports (1899 to 1903).

Year.	Ingot.	Rod, sheet, wire, and tube.	Manufactures, etc.*	Total.
	£	£	£	£
1899	561	3,103	556	4,220
1900	360	4,691	1,430	6,481
1901	1,134	4,939	2,066	8,139
1902	†	†	†	‡ 9,640
1903	†	†	†	7,052
Total Value				£35,532

* Includes coin. † Not separately classified by the Customs. ‡ Coin included with silver coin.

TIN.

The development of the tin deposits of the State has been considerably retarded by conditions tending against operations on a large scale; such disadvantages, however, are in some localities being gradually overcome, and the year's production of 817·05 tons shows an increase of nearly 32 per cent. over that of 1902.

Tin was first discovered in the latter part of 1888, and has since then been found occurring in several widely separated localities in the State, viz., at the heads of the Bow and the Lennard Rivers, in the Kimberley District; on the Thomas River, Gascoyne Goldfield; at Brockman's Soak and the Western Shaw, in the Pilbara District; and at Greenbushes, in the south-western portion of the State.

Pure tin oxide contains 78 per cent. of the metal, but the native compound invariably contains more or less of the oxides of other metals, with the result that it seldom assays over 74 per cent. of the metal. The Pilbara cassiterite, which is dark brown in colour, would appear to average 70 per cent.; that from Greenbushes, which is quite black, slightly less.

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The tin deposits of the State, wherever examined, fall naturally into two distinct categories:—

Superficial deposits:

(*a.*) Alluvial deposits.

(*b.*) Residuary sands, gravels, etc.

Deposits in Country Rock:

(*c.*) Tin-bearing granite and allied rocks.

(*d.*) Tin-bearing dykes.

Alluvial Deposits.—These are the most important, and vary very largely in nature, ranging from an extremely hard ferruginous conglomerate to a stiff clay or loose sand or gravel. The tin stone in the first-named is often extremely coarse, but more generally one-tenth of an inch or less in diameter, whilst that in the softer material is almost uniformly fine. Assays of 10 samples of this class of ore varied from ·9 per cent. up to 33·3 per cent. of the metal, the average being 10·1 per cent. The associated minerals are quartz, kaolin, limonite, ilmenite, tourmaline, tantalite, stibiotantalite, garnet, zircon, gold, magnetite, rutile, and topaz. No wolfram or scheelite has been detected in the ore; the mineral, once thought to be the latter, having proved in every case to be stibiotantalite. This mineral (a tantalite of antimony) and tantalite are of the greatest interest to the miners and smelters, since it is impossible to separate them from the tin stone by dressing, their specific gravities being practically identical. They have therefore to be smelted with the tin ore, and by contaminating the smelted tin with antimony, etc., seriously affect the purity and value of it. Owing principally to the presence of these two minerals the dressed ore from the alluvial claims has been found to be very variable in richness, ranging from a trace only of tin up to 72 per cent.

Residuary Deposits.—These are either lateritic ironstones or sands, clays, etc., derived from the decomposition *in situ* of igneous rocks. They are frequently stanniferous. The chief minerals accompanying the tin are limonite, quartz, tourmaline, clay, and mica.

Tin-bearing Granite and allied Rocks.—The tin-bearing granite consists of a granite passing in places into a foliated and highly-micaceous granite, with little or no felspar. This granite (greisen) contains tin, tourmaline, zircon, garnet, etc., as accessory constituents. In some parts of the field the tourmaline occurs in such quantity in the gneiss as to give a distinctive character to the rock, and would be better described as a tourmaline gneiss.

Tin-bearing Dykes.—These occur in several parts of the Greenbushes Tinfield.

The two districts from which an output of tin has been reported are Greenbushes and Marble Bar (Pilbara).

GREENBUSHES.

One of the most typical of the tin-bearing dykes occurs on the eastern side of the main road going south to Bridgetown, upon

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what was originally M.L. 82/76. A shaft has been put down to a shallow depth upon a tourmaline-bearing dyke, which was met with beneath the conglomerate at a depth of about five feet below the surface. The conglomerate contains detrital tourmaline, which led to the discovery of the dyke. As exposed in the workings, the width of the dyke is about two feet six inches, having a general north-westerly strike, with an underlie to the south-west at an angle of 70 degrees. The tourmaline is enclosed in a ferruginous clayey matrix, which contains occasional patches of quartzose material; the dyke may be a tourmaline-bearing pegmatite. The rock contains a small quantity of very angular tin, associated with large quantities of titanium. The tourmaline itself carries in parts appreciable quantities of tin. An assay of a carefully selected sample, believed to be characteristic of the whole dyke, yielded in the official laboratory 1·97 parts per hundred of metallic tin. There are several other parallel dykes throughout the field, but, so far, they have not been very much exploited, and do not appear to be very rich.

The following table shows the annual production of tin from the Greenbushes district as reported to the Mines Department prior to and since 1899:—

Production of Tin Ore from the Greenbushes District.

Year.	Quantity.	Value.
	tons.	£
Previous to 1899	1,590·33	66,108
1899	277·32	21,658
1900	435·62	29,528
1901	321·34	18,852
1902	403·21	24,680
1903	524·94	34,362
Total	3,552·76	195,188

MARBLE BAR.

(Pilbara.)

More than half the tin production of the Pilbara district, of which Marble Bar is the official centre, is obtained from Moolyella, the output of this locality at the end of 1903 being 855 tons, of an estimated value of £56,163.

The principal productive area of the Moolyella Tinfield, which embraces about nine square miles, is situated on the relatively high tableland drained by the head waters of Brockman's Creek and Talga River. The whole area is formed of an intrusive granite, the age of which has not yet been satisfactorily fixed.

The upheaval of the mass, and the stresses and strains resulting therefrom, induced along an axis having a north and south direction, have resulted in the production of a series of joints, etc., which have formed the channels up which mineral-bearing solutions have

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percolated and deposited in one place free quartz forming the persistent reefs, and in the other have attacked some of the constituents of the granite. The result of this chemical action has been the production of a rock made up principally of quartz albite, a little mica, together with a few garnets and cassiterite.

Practically all the tin hitherto obtained from Moolyella and elsewhere in the district is derived from the alluvial deposits found in the existing valleys, and to a certain extent from the deposits of residual tin, *i.e.*, ore derived from the decomposition *in situ* of tin-bearing pegmatites, which occurs all over that portion of the granite area which is reticulated by pegmatite veins; these afford a good standby for prospectors at such times as prospecting in other portions of the district becomes impossible.

Lode tin is known to occur at Moolyella, but owing to low percentage has not been worked. There is every encouragement to search for richer deposits over the 900 square miles which the tin-bearing granitic rocks have been proved to occupy.

The production of Marble Bar district is given below :—

Production of Tin Ore from the Marble Bar (Pilbara) District.

Year.	Quantity.	Value.
	tons.	£
Previous to 1899	75·45	4,419
1899	57·50	3,612
1900	387·87	27,174
1901	412·98	21,148
1902	216·35	15,103
1903	292·11	21,528
Total	1,442·26	92,984

The following tables show the total production of tin ore in the State and the export of ore and ingots up to the end of 1903, also the value of the more important imports for the last five years :—

Total Production of Tin Ore.

Year.	Quantity.	Value.
	tons.	£
Previous to 1899	1,665·78	70,527
1899	334·82	25,270
1900	823·49	56,702
1901	734·32	40,000
1902	619·56	39,783
1903	817·05	55,890
Total	4,995·02	288,172

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Tin Ore and Ingots Exported.

Year.	Ore.		Ingots.	
	Quantity.	Value.	Quantity.	Value.
	tons.	£	tons.	£
Previous to 1899 ...	1,738·28	76,227	...	...
1899	307·96	23,163	...	...
1900	470·28	38,178	142·35	18,872
1901	506·50	39,495	96·50	12,607
1902	279·00	22,568	141·00	16,380
1903	291·70	22,856	235·35	29,277
Total	3,593·72	222,487	615·20	77,136

Value of Tin Imports (1899 to 1903).

Year.	Ingot.	Foil.	Plate.	Wares and Manufactures.
	£	£	£	£
1899	2,647	79	901	3,270
1900	2,633	175	2,507	4,390
1901	*635	122	2,445	4,175
1902	*223	286	3,942	3,107
1903	81	†503	2,494	§
Total	6,219	1,165	12,289	...

* Includes block tin. † Includes both leaf and foil. § *See* footnote to page 942. marked§.

LEAD.

The production of lead or lead ore in the State, though at one time giving indication of rising to the dignity of an important industry, has of late years very greatly decreased, the industry being handicapped by the ore not containing sufficient silver to pay for its extraction.

Lead ores have only been worked so far as Uaroo, Geraldine, Northampton, Oakagee, Narra Tarra, and Jarrahdale.

The lodes are mainly composed of cerussite at the surface and galena below the water-level, accompanied by more or less quartz and other gangue minerals. Anglesite occurs freely at Gorge Creek, Ashburton; and jamesonite at Mt. DeCourcy, North-West; whilst fine specimens of crystallised pyromorphite have been obtained from the Geraldine Mine, on the Murchison River.

Small quantities of galena are frequently found to characterise the richer portions of gold reefs, notably at Menzies, Coolgardie, and Norseman; whilst small lemon-yellow crystals of the rare mineral vanadinite (chlorovanadate of lead, $PbCl_2 3Pb_3V_2O_8$) are found closely associated with gold in the oxidised ores of Pinyalling, Mulline, and Coolgardie.

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The chief sources of supply have been the mines of Northampton, in the Yandanooka mining district, and those of the Ashburton Goldfield. The ore is to a large extent associated with copper ores and by far the greater proportion of that raised has been exported without further treatment.

NORTHAMPTON.

Practically the whole of the lead ore exported from the State has been obtained from the Northampton district, which occupies an elevated tract of country formed by the tributaries of the Bowes River.

A series of sandstones and conglomerates once covered the whole surface of the ground, but from beneath these sedimentary beds now emerge those granites, gneisses, mica schists, quartz schists, etc., intersected by veins and masses of pegmatite, which are of chief interest from an economic point of view.

The most important feature in the structural geology of the district is the system of basic dykes with which the whole area is seamed. These dykes are continuous for a great distance and parallel to them are the lodes of lead and copper which have been opened up, but there are no mines deeper than 300 feet.

The following table shows the export of lead ores from the Northampton Mining District, which, it will be seen, accounts for the total export from the State :—

Export of Lead Ore from the Northampton Mining District.

Year.	Quantity.	Year.	Quantity.
	tons.		tons.
1850	5·00	1876	2,191·50
1851–2	*Nil*	1877	3,955·50
1853	*	1878	3,617·50
1854	*Nil*	1879	2,775·00
1855	25·00	1880	1,921·00
1856–8	*Nil*	1881	1,400·50
1859	13·50	1882	1,793·50
1860	98·50	1883	1,038·00
1861	79·00	1884	696·00
1862	9·00	1885	465·00
1863	230·00	1886	611·00
1864	80·00	1887	471·00
1865	703·00	1888	532·00
1866	273·50	1889	250·00
1867	902·00	1890	213·50
1868	1,100·50	1891	25·00
1869	699·50	1892	29·75
1870	1,209·50	1893–6	*Nil*
1871	420·00	1897	*
1872	364·00	1898	5·00
1873	965·50	1899	16·00
1874	2,143·75	1900	26·85
1875	2,289·00	1901–3	*Nil*
Total quantity exported			**33,643·85**

* Declared at £4, tonnage not stated.

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The total production of lead ore and pig lead in the State is shown in the table below:—

Production of Lead Ore and Pig Lead.

Year.	Lead Ore.		Pig Lead.		Total Value.
	Quantity.	Value.	Quantity.	Value.	
	tons.	£	tons.	£	£
1850 to 1860	142·00	1,429	577·00	11,640	13,069
1861 to 1870	5,286·00	62,636	3·00	50	62,686
1871 to 1880	20,642·75	240,029	17·25	348	240,377
1881 to 1890	7,470·50	59,887	9·00	180	60,067
1901 to 1903	...	...	...	...	...
Total	33,643·85	364,756	683·75	13,306	378,062

The following tables show the values of the exports of lead and lead ores, and the more important imports, for the last five years:—

Value of Lead Exports (1899 to 1903).

Year.	Lead Ore.	Pig Lead.
	£	£
1899	96	28,220
1900	242	47,513
1901	...	45,770
1902	...	8,884
1903	...	...
Total	338	130,387

Value of Lead Imports (1899 to 1903).

Year.	Sheet, pig, scrap, and piping.	Shot, bullets, and slugs.
	£	£
1899	1,685	139
1900	16,210	265
1901	48,828	263
1902	25,429	353
1903	4,333	1,119
Total	96,485	2,139

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SILVER.

The production of silver in Western Australia amounted at the end of 1903 to 341,024ozs., the metal being obtained mainly as a by-product.

There are no silver mines being worked in the State, though in the lead deposits of the North-West there is a source of silver which, up to the present, has hardly been touched. Numbers of the gold ores contain silver, the average Kalgoorlie ore being said to contain about 1oz. of silver for every 2ozs. of gold; but very little of the former seems to be recovered in the treatment to which the ore is subjected.

The crude gold produced in the State has now an average fineness of about ·8379, and contains a good deal of silver. Apart from this very little silver has been produced in the State, except the small amount obtained in smelting copper ores and telluride ores.

The quantity and value of the silver produced in the State and entered for export from 1900 to 1903, which is the nearest approach to the annual output, is as shown in the table below:—

Production of Silver.

Year.	Quantity.	Value.
	ozs.	£
1900	28,749	3,594
1901	60,869	7,609
1902	83,293	9,199
1903	168,113	19,153
Total	**341,024**	**39,555**

The amount of silver-lead ore which was obtained from the Ashburton Goldfield is shown below:—

Production of Silver-Lead Ore.

Year.	Quantity.	Value.
	tons.	£
1902	21·05	152
1903	35·85	277
Total	**56·90**	**429**

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The following tables show the value of the silver bullion and coin entered for export and imported during the last five years :—

Value of Silver Exports and Imports (1899 to 1903).*

Year.	Silver not classified.	Bullion.	Coin.
Exports.	£	£	£
1899	15,709	...	...
1900	28,214	...	...
1901	44,638	...	...
1902	19,240	...	...
1903	...	23,701	933
Total	107,801	23,701	933
*Imports.**			
1899		1	...
1900		20	3,478
1901		...	24,650
1902		...	†17,340
1903		12	...
Total		33	45,468

* For other silver imports *see* page 942. † Includes copper coin.

IRON ORES.

Iron ores are very widely distributed throughout Western Australia, but, with one or two exceptions, the area in which the exploitation of such deposits is actively prosecuted is very limited, such areas being at present confined to localities where ore used as a flux can be obtained in considerable quantities.

The greater iron deposits of the State have not so far been worked, some of the richest and most extensive being, from their geographical position, under present conditions practically valueless. Those of the Murchison stand out prominently before any others, and though neglected at present are destined to form a very important State asset. The position of the Murchison deposits with reference to the nearest seaport is shown in the table below, and also with respect to the nearest coalfield, but no coal suitable for smelting purposes has yet been found in Western Australia.

Deposit.	Distance from nearest seaport by rail and road.	Distance from railway line.	Distance to nearest coalfield by road and rail.
Mt. Hale ...	362 miles, Geraldton	100 miles, Cue	441 miles, Irwin River
Mt. Narryer	362 „ „	100 „ „	441 „ „
Wilgie Mia ...	312 „ „	50 „ „	391 „ „

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Of the iron deposits generally those so far examined can be broadly separated into two main divisions—(*a*) the ores associated with the crystalline schists and other allied rocks; and (*b*) the superficial deposits of limonite (laterite ore), which occupy extensive areas in many and widely separated portions of the State; and the soft porous deposits of hydrated oxide of iron (bog ore) of comparatively recent origin.

ORES ASSOCIATED WITH CRYSTALLINE SCHISTS.

The most important deposits associated with the crystalline schists are those of the Murchison already referred to, developed most extensively between 25 degrees and 28 degrees of south latitude, and 116 and 119 degrees east longitude. The principal localities are Horseshoe, Peak Hill, Mount Gould, and Mount No Name (Peak Hill District); and Mount Hale, Weld Range (Wilgie Mia); Munara Hills and Mount Narryer (Murchison District). Less important deposits of this nature occur at Kilalo Well (Murchison District); Marble Bar (Pilbara District); Wiluna, Mount Townsend, and Mount Marion (East Murchison District); Bardoc (Broad Arrow District); Mount Jackson (Yilgarn District); and Jennapullen, Blackboy Hill, and Greenhills (Avon District).

These deposits consist of highly inclined beds, bands, and lenses of almost pure hematite (occasionally magnetite) or admixtures in all proportions of hematite and quartz, interbedded with and sometimes replacing quartzites and quartz schists.

Mounts Hale, Taylor, etc.—The sigma-shaped range of hills on the west side of the Murchison, of which Mounts Taylor, Hale, Matthew, Yarrameedie, and Erawandoo form the most prominent summits, is remarkably prolific in iron-bearing schists. The summit of Mount Hale is formed of contorted quartz schists, with bands of hematite, which occur in lenticular masses; some bands are often as thin as a sheet of paper, whilst others widen out to considerable dimensions. One band measured 70 feet across and outcropped for over a quarter of a mile, but varied in thickness in different parts. There were similar bands parallel to it and equally persistent along the strike. Just under the western summit of Mount Hale the quartzite is replaced by a great bed of hematite, several huge monoliths of which stand out prominently on the range. This hematite can be followed along the range to a point just south of the summit of Mount Matthew.

The outcrop of a bed of ironstone forms a conspicuous feature on the surface at the foot of the Mount Narryer Range. The bed, which is vertical, attains a thickness of eight or nine feet, and rises about two feet above the ground.

In the Weld Range, at the head of the Roderick River, is the Wilgie Mia, said to be one of the richest iron lodes in the world. This deposit was worked by the natives before the white invasion of Western Australia, and the ore (used as war paint) was traded for great distances. It has been opened up by them to a depth of

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over 100 feet, and at the bottom of the excavation to a width of 50 yards.

The deposit, which is of almost pure hematite, is roughly some 150 feet to 200 feet in width, and forms a ridge about three miles in length, rising in places to a height of 400 feet above the plain. The deposit is undoubtedly of similar origin to the hematite-bearing quartzites which form the main axis of the Weld Range, and which are so prevalent throughout the whole of the Murchison goldfield, the only difference being that in this case silica is almost entirely absent and the lode is composed of almost pure hematite, with magnetite and limonite, resulting from the gradual replacement of greenstone schists by iron-bearing solutions.

The dip of the lode is very nearly vertical. As sulphides are not likely to be met with above water level—which is about 60 feet below the surface of the plain—it will be thus seen that there is an immense body of very high-grade iron ore here.

A second somewhat similar deposit is said to exist about two miles to the north-eastward of Mount Lulworth.

The following are three partial analyses of samples of iron ore from the Wilgie Mia, and one also of a sample (IV.) of hematite-bearing quartzite from the Weld Range:—

Analyses.	I.	II.	III.	IV.
	per cent.	per cent.	per cent.	per cent.
Metallic Iron	63·87	64·36	68·83	35·50
Silica	2·48	1·38	1·00	43·42
Phosphorus	·090	·052	small trace	·089
Sulphur	·033	·023	·035	·036
Water (hyg.)	·89	·57	·19	·15
Water (combined)	1·52	·60	·35	4·17

Traces only of titanium were present in these samples.

Samples I., II., and III. represent very rich hematite ores, extremely low in sulphur and silica and free from titanium. The phosphorus percentage in I. is somewhat above the Bessemer limit; pig iron smelted from it would, however, make good stock for the production of "basic" steel. The phosphorus percentage in sample II. is just about the permissible limit for the cheaper Bessemer process; but sample III. is extremely pure and low in phosphorus, and as there is a considerable quantity of this quality of ore present, the whole deposit, if it is ever worked, will probably prove of such grade as to permit of the use of this process of steel manufacture. Regarding the probable quantity of ore present, an estimate has been made of the amount in sight, *i.e.*, actually above the level of the surrounding plains, as roughly, 26½ million tons.

In addition to this deposit, there are the hematite-bearing quartzites which traverse the Weld Range from end to end, and of which (IV.) is a typical sample. These deposits, of which there is

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practically an inexhaustible supply, and amongst which there are said to be other rich patches similar to the Wilgie Mia deposit, though of rather too low grade for smelting purposes as they now exist, could, with the employment of suitable concentrating machinery, be converted into first-class ores, and during this process of concentration would doubtless lose a considerable portion of their phosphorus contents. These remarks also apply to the hematite-bearing quartzites found in such large quantities all over the Murchison Goldfield, which frequently contain from 30 to 40 per cent. of metallic iron. With regard to the probability of these ores living to a depth, similar deposits (of hematite-bearing quartzites) have been proved to exist to a vertical depth of 250 feet at Boogardie and Lake Austin, apparently without any change in their mineral constitution beyond a slightly increased sulphur percentage.

SUPERFICIAL DEPOSITS AND BOG ORES.

The superficial deposits comprise the laterite ores and the bog iron ores. The laterite ores, together with the gravel resulting from their denudation, are the most widely distributed ores in the State; they vary very much in their composition. The ores are most largely developed on the tops of hills or ranges; in depth they pass gradually, without any distinct line of demarcation, into the rock upon which they lie. These deposits owe their origin to the concentration of the ferric oxide by the action of atmospheric changes. Nowhere do any of these ores attain any great thickness. The ores of this class have been principally used for fluxing purposes, to which end 50,792 tons have been raised up to the end of 1903.

The bog iron ores consist of soft porous deposits of hydrated oxide of iron; these occur at different points along the southern and western coast line. Up to the present, however, deposits of this class have not been exploited.

The following table shows the production of iron ore in Western Australia used principally for fluxing purposes, and some particulars are also given in tabulated form of the imports and exports of pig iron and certain manufactures for the last five years:—

Production of Iron Ore.

Year.	Ore raised.	Estimated Value.
	tons.	£
Previous to 1899	100	300
1899	12,852	8,939
1900	12,251	9,258
1901	20,569	13,246
1902	4,800	2,040
1903	220	88
Total	50,792	33,871

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Value of Exports and Imports of Iron and Steel (1899 to 1903).*

Year.	Pig and Scrap.	Bar, Plate, Sheet, and Rod.	Structural, Girders, etc.
*Exports.**	£	£	£
1899	878	642	...
1900	1,056	1,999	...
1901	1	562	...
1902	10	354	...
1903	247	1,786	...
Total	2,191	5,343	...
*Imports.**			
1899	5,069	16,407	1,294
1900	9,590	28,020	4,903
1901	7,971	39,209	7,690
1902	14,483	33,060	10,306
1903	21,467	54,361	7,952
Total	68,580	171,057	32,845

* For all other, and manufactures, *see* Statistical Register of Western Australia, Part IV. (Interchange).

ANTIMONY ORES.

Ores of antimony occur in the Mallina, Peewah, and Roebourne Districts, West Pilbara Goldfield.

There are some good lodes of stibnite, and the value in most cases is greatly increased by the gold they contain; the production, however, has been limited to the export of a single parcel in 1903.

Exports and Imports of Antimony Ores.

Year.	Quantity.	Value.
Exports.	tons.	£
1903	22	230
Total	22	230
Imports.		
1901		9
1902		*Nil*
1903		*Nil*
Total		9

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COBALT ORES.

Asbolite, the only ore of cobalt which has, so far, been recognised in the State, occurs at Norseman and somewhat abundantly in parts of the deep leads at Kanowna, principally in the "pug" or bedded kaolin, and in the underlying much-weathered chlorite schists, from which it has doubtless been originally derived. It is either so thoroughly intermingled with the clay as to be inseparable from it, or else is found in lumps or lining vughs in a soft mammilated form, with a bright grey metallic lustre. It occurs also in the nodules of magnesite found at the junction of the "pug" and the adjacent schists. A sample of "pug" carrying asbolite was found to assay:—

Cobalt	7·56 per cent.
Copper	·02 per cent.

A similar mineral occurs at Kalgoorlie in veins and impregnations in the oxidised portions of the lodes.

No production of cobalt ore has been reported to the Mines Department, but it appears from the Customs records that a small amount, shown in the table below, has been exported in 1902:—

Export of Cobalt Ores.

Year.	Quantity.	Value.
	tons.	£
1902	2	41
1903	*Nil*	*Nil*
Total	2	41

NON-METALLIFEROUS SUBSTANCES.

COAL.

The coal produced in Western Australia, owing to the quality being unsuitable for export, is almost entirely consumed within the State. The total output up to the end of 1903 amounted to 568,400 tons; in value, £306,424. During the year there was a decrease in the output of five per cent. owing to labour disputes, resulting in a cessation of operations for several weeks at the Collie Proprietary, one of the chief producers.

Coal of three different ages is known in the State, viz., in the Carboniferous Beds of the Irwin River, the Mesozoic Beds of the South-West, and the Post-Tertiary Beds of Coolgardie and the south coast. All the coal hitherto discovered has proved to contain a considerable proportion of water, belonging either to the class of splint (hydrous bituminous) coals or to that of lignites.

Of the Irwin River Coalfield, where the carboniferous rocks occupy an area of about 200 square miles, it may be said that though a workable seam has not yet been discovered, the base of

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the formation has never been unequivocally reached by any of the boring operations which have been carried out up to the present. Two seams occur in the upper part of the formation, from samples of which the following results were obtained from the results of six analyses :—

Chemical Analyses of Coals from the Irwin River Basin.

Description.	Moisture.	Volatile Hydro-carbons.	Fixed Carbon and Ash.	Sulphur.
Mean of Six Samples	19·59	22·64	57·76	0·19

Areas of similar rocks occur at the Greenough and Gascoyne Rivers, but have not yet been thoroughly tested.

The only coals which have been worked in the State are the Mesozoic coals of the Collie River Coalfield. This field embraces an area of about 50 square miles, and is connected with the main railway system of the State.

The coal measures have been deposited in a comparatively unsymmetrical shallow basin of erosion. The strata do not appear to have been subjected to any serious disturbance, and to have suffered little or no lateral pressure. So far as mining operations have at present been carried, the beds all dip at a comparatively low angle into the basin. This low dip may, in part, be due to the changes produced by the consolidation and the settling of the strata in the basin in which the vegetable and other matter was deposited. The effects of this settling are shown by the small faults, in reality cracks, which have been discovered in the course of the workings along the edge of the coal basin.

A considerable number of workable seams have been proved, by mining and boring, to exist in this basin, the deepest so far met with being pierced at 800ft., on the Collie Boulder Company's property.

The coal seams vary in thickness from that of a sheet of paper up to about 13 feet, and all the seams are practically identical in nature, being hydrous, non-caking, bituminous coals, varying noticeably only in the proportion of ash present.

The coal from the better portions of the seams is bright and evenly bedded, but fragile, partly owing to the numerous partings of mother-of-coal in it, partly owing to spontaneous decrepitation accompanying a loss of moisture on exposure to the air. A coal of this kind contains less than half the average percentage of ash. The poorer qualities of coal contain considerably larger percentages of ash and correspondingly smaller proportions of the other constituents, becoming physically harder, denser, and more massive, with a conchoidal fracture.

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The following table gives the mean results obtained from analyses of 23 samples of Collie coal :—

Proximate Analyses of Collie Coal.

Description.	Specific Gravity.	Calorific Value.		Percentage Composition.				
		Pounds of Water evaporated.	British Thermal Units.	Moisture.	Volatile Hydro-carbons.	Fixed Carbon.	Ash.	Sulphur.
Mean of 23 samples ...	1·379	10·71	10,340	12·46	29·63	48·81	9·10	·50

Tertiary and Post-Tertiary lignites and brown coals, mostly of poor quality, are known to occur in several of the valleys along the south coast, and a seam of brown coal occurs to the south-east of the town of Coolgardie, at a depth of 65 feet, in a series of horizontally bedded pleistocene rocks, some 400 feet in thickness.

The coal from the seams of this class which have so far been located contains an extremely large percentage of ash.

Details of the production of coal in Western Australia, which is entirely that of the Collie Coalfield, are shown in the tables below, and also the exports and imports of coal, coke, and patent fuel for the last five years :—

Production of Coal.

Year.	Coal raised.	Value.
	tons.	£
Previous to 1899	3,508·00	1,761
1899	54,336·00	25,951
1900	118,410·10	54,835
1901	117,835·00	68,561
1902	140,883·90	86,188
1903	133,426·62	69,128
Total	**568,400·42**	**306,424**

Value of Coal Exports (1899 to 1903).

Year.	Value.
	£
1899	45,283
1900	83,421
1901	165,888
1902	93,135
1903	58,194
Total	**445,921**

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Value of Imports of Coal, Coke, and Patent Fuel (1899 to 1903)

Year.	Coal.	Coke and Patent Fuel.*
	£	£
1899	95,144	1,968
1900	110,699	15,259
1901	158,471	27,544
1902	133,769	25,820
1903	69,636	4,211
Total	567,719	74,802

* Character not specified.

LIMESTONE, BUILDING STONES, CLAYS, ETC.

Limestone is used in the State as a flux for metallurgical purposes, as a building stone, for cyaniding purposes, and for the preparation of quicklime.

The production of limestone in the State up to the end of 1903, so far as it can at present be estimated, amounts in value to £12,298, but owing to the number of privately-owned quarries complete annual returns have not been recorded.

Limestone occurs throughout the recent and tertiary formation which occupies so large an area along the coast. The rock of the coastal limestone series, from the mode of formation, varies greatly in the quantity of lime present, being frequently more a calcareous sandstone, which is used to a considerable extent for the stonework of small buildings. In the municipality of Perth the stone used for this purpose is obtained chiefly from Cottesloe and Rottnest Island.

The sources of supply for building stones of higher grade are Meckering, on the Eastern Goldfields Railway, from which a fine-grained granite is obtained; and Donnybroook, from which is obtained a compact light-coloured sandstone, which is coming into much favour for building purposes. Marble, etc., for ornamental purposes, is imported.

Extensive beds of porcelain clay and terra cotta have been proved, by boring, to overlie the extension of the deep lead at Kanowna, but have not so far received much attention.

Brick clays are worked in nearly all parts of the State, and fire-clays have been worked at several of the collieries of the Collie Coalfield. No statistics, however, are yet available which will enable the production of structural materials, clays, etc., to be arrived at.

Tables are given below showing the actual figures available with regard to the production of limestone, of which, for the reasons

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already stated, the record is incomplete, and also the imports of clay, clay products, and stones of all kinds, for the last five years:—

Production of Limestone.

Year.	Quantity.	Value.
	tons.	£
1899	17,593·00	2,838
1900	15,926·85	3,594
1901	18,210·00	4,348
1902	5,080·35	1,340
1903	1,279·50	178
Total	58,089·70	12,298

Value of Imports of Fireclay, Clay Products, and Stones of all kinds (1899 to 1903).

Year.	Fireclay.	Bricks.*	Earthen and China-wares.	Earthen-ware Drain Pipes.	Tiles.
	£	£	£	£	£
1899	272	1,863	10,705	1,784	928
1900	177	1,557	15,126	1,987	1,823
1901	277	1,753	18,882	4,197	357
1902	720	1,544	7,301	12,118	† 1,367
1903	190	798	7,118	10,505	† 3,021

	Marble Stone and Slate (rough).	Marble Stone and Slate (wrought).	Stone sawn and in the rough.	Other stones not otherwise specified.
1899	1,458	1,041	...	151
1900	1,344	902	...	141
1901	2,104	1,458	...	250
1902	1,890	‡ 1,663	...	**
1903	1,460	‡ 1,921	2,083	**

	Grindstones, Oilstones, and Whetstones.	Litho. and Emery Stones.	Pumice.
1899	217	§	§
1900	154	§	§
1901	438	§	§
1902	753	236	42
1903	718	§	36

* Chiefly fire, includes also air and bath. † Includes Asphalt and Roofing Tiles. ‡ Includes Slate Roof and Slab. ** *See* footnote on page 942, marked**. § *See* footnote on page 942, marked§.

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PRECIOUS STONES AND * PEARLS.

The production of Precious Stones in Western Australia has, so far, been limited to 25 small diamonds, which were supposed to have come from the Pilbara District; but the output of pearls, some particulars of which it is not inappropriate to add in this connection, is of considerable annual value.

A number of minerals of the character of precious stones occur in the State, some in the particular varieties which are classed as gems, and specimens are from time to time examined in the Laboratory, and the localities recorded.

Tiger's eye (*Crocidolite*).—A deposit of this mineral occurs at Yarra Yarra Creek, in the Murchison District. The deposit was opened up to a slight extent under the name of the Bulgroo Opal Mine, but none of the material was ever placed in the market. During the last year some pieces of it were cut and polished in the Laboratory, and a representative series of considerable beauty placed in the Museum. Some of this was sent to Dr. Geo. F. Kunz, the well-known American gem expert, who expressed the opinion that it was more beautiful than the original South African gem.

Garnets.—Some fine garnets are said to occur near Uaroo Lyndon District.

Moonstone.—Good moonstones have been discovered on the beach at the mouth of the Bowes River, Victoria District, which appear to have been washed out of a mesozoic conglomerate outcropping at the water's edge.

Tourmaline.—Pink and green tourmaline have been found at Coconarup embedded in a hard coarse pegmatite.

Opal.—Precious opal occurs at Coolgardie, but the small deposit, being the result of secondary silicification in hard metamorphosed rocks, would not be likely to pay to work commercially.

With regard to the output of pearls, the principal centres of the industry are Broome, Roebourne, Onslow, and Shark Bay, on the North-West and West coasts. The total value of the pearls obtained during 1903, exclusive of the value of the shell, is estimated to be £50,000.

Tables are given below showing the production of diamonds and the value of the exports and imports of precious stones and pearls for the five years from 1899 to 1903:—

Production of Diamonds.

Year.	Value.
	£
1899	†24
1900 to 1903	nil
Total	24

* *See* also under "Fauna" and "Fisheries."

† Twenty-five small diamonds found in battery box after crushing auriferous conglomerate from Nullagine.

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Exports and Imports of Precious Stones and Pearls (1899 to 1903).*

Year.	Precious Stones.†	Pearls.‡
Exports.	£	£
1899	...	20,000§
1900	...	20,000§
1901	1,008	25,000§
1902	580	40,000§
1903	423	50,000§
Total	**2,011**	**155,000**
Imports.		
1899	514	...
1900	436	...
1901	445	...
1902	4,173	...
1903	1,173	...
Total	**6,741**	...

* Exclusive of value of shell. † Source and kind not recorded. ‡ Product of State. § Estimated value.

MICA.

What may be called possible commercial mica is known to occur at the following different places in the State:—Nokenena Brook, Northampton; Tambourah, Pilbara Goldfield; Mullalyup, Darling Ranges; Bindoon; The Mica Mine, Londonderry, Coolgardie Goldfield.

Mica is probably one of the minerals most widely diffused throughout the State; but it is only of any real commercial value when it occurs in large sheets, or can be obtained in considerable quantities. The mica-producing strata are the crystalline schists and allied rocks, which occupy fully two-thirds of the (geologically) known areas of Western Australia. Generally it is found that the mica-producing rocks are pegmatitic granites, which traverse the crystalline schists, etc., either in the form of dykes, sheets, or lenticular masses, which are often parallel to the foliation of the surrounding strata.

Under the generic term "Mica" several distinct mineral species are included; they are all characterised by the readiness with which they split into very thin, elastic plates. Four of the species are of commercial importance, viz., Muscovite (common or white mica); Phlogopite (amber mica); Biotite (black mica); and Lepidolite

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(lithia mica). They all occur under somewhat similar geological conditions.

Up to the present it does not appear that much mica of marketable value has yet been raised in the State. The following tables give the export of mica and the imports from 1899 to 1903, as shown by the records in the Customs House.

Total Value of Mica Exported, and the Value of Imports from 1899-1903.

Year.	Value.
Exports.	£
1892	25
1893	4
1894	*Nil*
1895	3
1896	*Nil*
1897	209
1898	*Nil*
1899	50
1900	3
1901 to 1903	*Nil*
Total	294
Imports (1899 to 1903).	
1899	...
1900	...
1901	1
1902	132
1903	§

§ *See* footnote on page 942, marked§.

ASBESTOS.

Asbestos has been found in widely separated localities in the State; but, so far, with the possible exception of that from Tambourah, on the West Pilbara Goldfield, most of the mineral discovered up to the present time has proved to be actinolite, of so coarsely fibrous a nature as to be practically valueless.

The asbestos from Tambourah turns out to be fibrous chrysotile, identical with the Canadian mineral, which is so much valued. The Tambourah asbestos, unlike most of the Australian mineral, has not the great defect of a low tensile strength, and in all the points—infusibility, softness, flexibility, fineness, and the ease with which the fibres can be separated—is well above the average. No

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scientific examination of the district having been undertaken, information as to the mode of occurrence of the mineral is unfortunately not available.

The following tables show the production of asbestos in the State, in so far as may be gauged by the export records of H.M. Customs House and also the imports for the years 1899 to 1903 :—

Total Value of Asbestos Exported and the Value of Imports from 1899 to 1903.

Year.	Value.
	£
Exports.	
1899	1
1900	*Nil*
1901	*Nil*
1902	*Nil*
1903	10
Total	11
Imports (1899 to 1903).	
1899	863
1900	985
1901	839
1902	1,286
1903	§

§ *See* footnote on page 942, marked §.

SALT.

Salt is obtained from certain depressions in the calcareous sandstones of the coast, which are filled to a shallow depth in winter with salt water, the salt in which is probably derived from sea-spray. In the summer the lakes dry up completely, leaving a layer of salt two or three inches thick, which is collected and either consumed locally or exported, both as a fine and crude product.

The two localities where salt-collecting has been carried on are Fremantle and Esperance, in the former at Rottnest Island, and the latter at Middle Island; from both a very pure product is obtained, containing, when dry, from 98 to 99 per cent. of pure chloride.

The following tables show the production of salt at Rottnest Island and Esperance, so far as records are available. Tables

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showing the value of the exports of salt and the imports into the State from 1899 to 1903 are also given :—

Production of Salt at Rottnest and Esperance.

Year.	Rottnest.				Esperance.		Total Value.
	Fine.		Crude.				
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
	tons.	£	tons.	£	tons.	£	£
1868 to 1898	2,185·50	6,824·59	380·50	380·50	...	...	7,205·09
1899 ...	75·00	198·75	25·00	25·00	248·00	248·00	471·75
1900 ...	97·50	258·37	21·00	21·00	...	...	279·37
1901 ...	69·00	182·85	21·00	21·00	50·00	69·00	272·85
1902 ...	71·00	188·15	21·00	21·00	...	...	209·15
1903 ...	...	...	...	...	54·00	87·00	87·00
Total ...	2,498·00	7,652·71	468·50	468·50	352·00	404·00	8,525·21

Values of Exports and Imports of Salt (1899 to 1903).

Year.	Rock.	Other kinds.
Exports.	£	£
1899	...	249
1900	...	4
1901	...	75
1902	...	...
1903	...	87
Total	...	415
Imports.		
1899	41	2,858
1900	70	3,193
1901	37	3,183
1902	73	3,462
1903	54	3,209
Total	275	15,905

GUANO.

The economic importance of the accumulations of guano occurring in the Abrolhos Islands and elsewhere in the North is sufficient justification for referring to them in a description of the mineral resources of the State. No mineral phosphates or fertilisers, other than guano, are produced. That the importance of the island

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deposits is considerable may be judged from the appended table of statistics, showing the production of guano in the State, as prepared from official data. No record would appear to have been kept of the quantity of guano exported previous to the year 1847; nor during the years 1847 to 1855, 1855 to 1865, 1865 to 1872, 1872 to 1876; nor again the years from 1879 to 1882. From the official figures it appears that since 1876 92,342·35 tons of guano were raised, and that the total royalty paid to the Government from that date amounted to £41,995·75. From the year 1847, as shown by the Customs figures, 86,165·25 tons of guano, valued at £335,591·75, were exported from the State. Up to the present time the chief source of the guano raised is in the Houtman Abrolhos Islands, West of the town of Geraldton.

In August, 1897, Mr. Licensed Surveyor Wells was despatched from Geraldton to the Abrolhos Islands for the purpose of officially estimating the quantity of guano still available on the group. This officer visited 10 islands of the Eastern group, and on four of them, viz., Rat, Third, Beacon, and Wooded Islands, found guano deposits varying from four inches to 27 inches in thickness. The islands of the Eastern group are estimated to contain 13,944 tons of guano. Of the 14 islands of the Pelsart group examined, nine were found to contain guano deposits, viz., Pelsart, Gun Island, and seven small islands adjacent. The deposits varied from seven inches to 13 inches in thickness. The group is supposed to contain 48,468 tons of guano. Mr. Wells examined 18 islands of the Wallaby group, but only made surveys of four, viz., West Wallaby, Pelican Island, and North and South Pigeon Islands. These were estimated to contain 38,088 tons of guano, varying in thickness from four inches to 17 inches. Small quantities of guano also occur in several of the lesser islands.

The following tables show the production and exports of guano, also the imports of fertilisers, from 1899 to 1903, the character of which however cannot, from the available records, be accurately specified:—

Production of Guano.

Year.	Quantity	Royalty paid.		
	tons.	£	s.	d.
1876–1880	36,754·15	18,377	1	6
1881–1890	21,398·00	11,480	6	3
1891–1900	28,023·20	10,936	12	3
1901	1,692·00	* 590	16	0
1902	1,930·00	† 287	0	0
1903	2,547·00	‡ 323	19	4
Total	92,342·35	41,995	15	4

* 857 tons for use in State were free from royalty. † 1,130 tons for use in State were free from royalty. ‡ 1,878 tons for use in State were free from royalty.

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Exports of Guano.

Year.	Quantity.	Value.
	tons.	£
1847–1880	28,652·00	133,781·50
1881–1890	25,880·50	131,217·25
1891–1900	27,181·75	61,017·00
1901	1,699·00	2,742·00
1902	2,400·00	4,800·00
1903	952·00	2,034·00
Total	86,165·25	335,591·75

Values of Imports of Fertilisers (1899-1903).*

Year.	Value.
	£
1899	18,491
1900	17,036
1901	18,632
1902	23,040
1903	32,048
Total	109,247

* Character not specified.

ARTESIAN WATER.

The artesian water of the State, though often containing an appreciable amount of mineral salts in solution, cannot in a strict sense be termed a mineral water; but the direct connection of its occurrence with the geology of the country, and its importance as a factor in the water supply of a large portion of the State, render no apology necessary for including some particulars with regard to its occurrence and the quantity at present available.

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In its broader [illegible] naturally into three [illegible] of different [illegible]

(a.) The Coastal Plain. This [illegible] of strata around the coast, with a [illegible] slope to the seaward. [illegible] of shallow water deposits [illegible] and thin shales, with [illegible] and clays. It has a [illegible] on the Western [illegible] head of the Great Australian Bight [illegible] devoid of rivers [illegible] interior. Its inner margin [illegible] of 600 feet above sea-level in certain localities. The Coastal Plain is separated from the interior by a belt of—

(b.) Hill Ranges, which form what may be called the escarpment of the Plateau and Plains of the interior. The Hill Ranges have an average elevation of about 1,200 feet, though isolated ranges [illegible] of 4,000 feet above sea-level. This escarpment has a short or steep slope [illegible] the edge of the Coastal Plain, into which it gradually merges. This belt of country, drained by the rivers of the State, is formed of granitic and metamorphic rocks, the decay of which produces excellent soil. It comprises, owing to its rainfall, the principal agricultural districts of the State.

(c.) The Plateaux and Plains of the interior consist of a broken tableland, from which rise isolated hills and ridges of metamorphic rocks, often separated by sand plains of some considerable extent, and containing depressions occupied by saline marshes, clay flats, brine lakes, or deposits of salt. There are no rivers, and the rainfall is slight. This plateau forms the chief mineral region of the State.

The Coastal Plain is of considerable economic importance, in that the certainty of obtaining artesian water from the underlying strata has been very thoroughly established, and the system of boring for artesian water is capable of great expansion in the State, being limited only by locality.

A glance at any Geological Map of Western Australia shows an enormous extent of Recent and Tertiary strata entering the State at its eastern border, in the Nullabor Plains, and extending without any interruption as far as Israelite Bay. These strata

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consist of porous limestones associated with beds, into which the rainfall is rapidly absorbed and discharged seawards in the form of fresh water springs. Where these strata have been pierced on the South Australian side of the border, the section invariably shows from 300ft. to 500ft. of sandy water-bearing beds, of undetermined age, covered by a variable thickness of calcareous strata of both Older and Newer Tertiary age. The beds have a prevailing dip towards the Great Australian Bight, and water rises in the bore holes to a height equal to that of the sea-level. So far, however, the water obtained has proved to be either salt or brackish, but at any rate suitable for stock purposes.

The whole of the area of these beds in the Southern portion of this State may be described as an artesian water area, though there may be, and undoubtedly are, conditions affecting the water supply, such as local variations in the thickness, the relative porosity of the beds, and the unevenness of the floor upon which they were laid down, which, with our present meagre knowledge, can only be set at rest by the operations of the drill.

The strata of the coastal plain in the vicinity of the Swan River have proved that in certain areas they possess all the conditions necessary for yielding an overflowing supply of water. The structure of the coastal plain differs in some respects from the typical areas in which artesian water has been obtained in the eastern portions of Australia. The strata are horizontal or nearly so, though occasionally there is a slight local dip of about five degrees in places. The effect of this horizontally is shown in the fact that the water-carrying beds do not crop out on the surface, at the foot of the Darling Range, but impinge directly against that portion which is now concealed from view. These beds, clays (marls ?), and sandstones, with occasional limestones, do not maintain a uniform thickness throughout, but are disposed in the form of lenticular beds, some of which appear to be of exceptionally absorptive properties.

The bores which have already been put down between the Darling Range and the coast have shown how irregular are the strata from which the water has been obtained, and what is of further moment, they also demonstrate that only in one instance has the base of the water-carrying beds been reached.

The first supply of artesian water in the vicinity of Perth was obtained some time during the year 1873. Since then all the available information about artesian wells has been collected and tabulated for convenience of reference. So far as official data show, there are now 44 artesian and sub-artesian wells in the State, of which some particulars of flow, depth, etc., are given in the table following :—

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Table of Deep Bores—Artesian and Sub-Artesian.

Locality.	Total depth of Bore in feet.	Depth to principal water-bearing bed below surface, in feet.	Temperature of water Fah. degrees.	Artesian. Static pressure, in lbs. per square inch, at surface.	Artesian. Continuous daily flow in gallons when uncontrolled.	Sub-artesian. Volume pumped or available daily, in gallons.
Wyndham, Town of	690	...	...	*	†	...
Onslow, Town of	1,729	1,015	...	10·82	120	...
Carnarvon	3,011	...	...	83·00	515,000	...
Geraldton	420	...	...	*	†	...
Geraldton	1,531	1,531	...	...	...	11,700
Dongara	2,111	1,478	104°	9·54	216,000	...
Yardarino	1,607	1,607	86°	...	589,000	...
Midland Junction	500	420	...	8·66	266,000	...
Woodbridge	236	160	...	6·00	124,000	...
Guildford	408	408	...	7·50	60,000	...
Guildford	798	784	...	13·00	192,000	...
Woodbridge	691	691	...	4·75	200,000	...
Guildford	1,202	1,140	...	29·00	1,167,000	...
Guildford	340	304	75°	5·00	71,000	...
Guildford	404	199	...	9·00	65,000	...
Bayswater	1,100	1,070	...	8·00	536,000	...
East Perth	948	948	...	...	217,400	...
Leederville	1,113	1,023	...	4·75	217,000	...
Perth	820	820	...	...	384,000	...
Bagot Road, Subiaco	876	876	...	...	...	450,000
South Perth	1,856	1,837	...	...	454,000	...
Causeway, East Perth	1,200	...	...	...	825,000	...
East Perth	1,034	...	...	...	171,700	...
Melville Park	1,487	1,487	91°	17·00	54,000	...
Cannington	1,000	...	...	...	99,000	...
Fremantle	456	434	80°	...	...	565,200
Railway Station, Bunbury	30	...	...	...	...	...
Government Grant on Estuary, Bunbury	104	97	...	...	...	70,000
Reserve 2030, Stirling Street, Bunbury	426	86	...	...	100,000	...
Dardanup	453	...	...	...	...	...
Dardanup	1,032	...	...	...	...	...
Fremantle	1,322	433	...	...	...	1,090,000
Reserve 4228, Claremont	1,506	1,189	...	37·00	560,000	...
Guildford	...	...	...	...	...	...
Eyre No. 2 Site, 30 Miles North of Madura	430	410	...	...	22,000	15,000
Eyre No. 1 Site, at Madura	2,101	2,080	...	12·00	31,000	...
Leederville	1,680	1,375	...	...	...	...
Perth	815	600	...	10·00	217,000	...
Woodbridge	242	236	...	...	160,000	...
Claremont	1,500	1,320	...	...	310,000	...
Near Carnarvon	100	...	...	...	...	...
Leederville		...	...	...	...	...
Midland Junction	322	280	...	...	...	...
Midland Junction	875	600	...	...	1,100,000	...

NOTE.—The Dongara Bore, though included here for convenience, was put down to test for Coal Measures. * No water. † Bore abandoned.

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Imports and Exports of Minerals and Mineral Products.

Summary of Values of Minerals and Mineral Products Imported and Exported during each of the Five Years, 1899 to 1903.

Mineral or Product.	1899.	1900.	1901.	1902.	1903.
Imports.	£	£	£	£	£
§Ammonium Carbonate	...	...	6	298	161
§Antimony (*see page* 926)	...	...	...	...	...
§Asbestos (*see page* 935)	...	...	...	...	...
§Asphalt	3,597	5,219	8,028	..	...
§Brass, scrap, sheet, and tube	...	...	151	532	1,041
Do. wares	2,474	3,337	2,406	734	
§Carbon (diamonds)	...	...	3,816	2,185	..
Cement	18,064	14,385	16,837	34,353	21,333
Chalk (Whiting, etc.)	306	351	312	238	234
Clay (*see page* 931)	...	...	...	...	
Coal, Coke, and Patent Fuel (*see page* 930)	...	...	...	...	...
Copper (*see page* 914)	...	...	...	...	...
Do. sulphate of	110	560	822	433	492
Fertilisers (*see page* 938)	...	...	...	...	...
Fireclay (*see page* 931)	...	...	...	...	...
Glass, sheet, plate, etc.	4,262	6,576	6,801	8,551	10,789
Do. wares	16,916	18,892	22,892	28,448	24,259
Gold, bullion	687	...	13	...	.
Do. coin	5,000	...	...	...	.
Do. foil and leaf *	381	489	518	468	663
Do. plate †	1,594	2,335	918	‡	‡
Iron and Steel (*see page* 926)	...	...	...	...	..
§Iron, sulphate of	6	...	...	...	
Jewellery	16,868	22,982	28,390	38,893	45,239
Lead (*see page* 920)	...	...	...	...	.
Lime, sulphate of (*see Plaster of Paris*)	...	...	...	...	...
Mica (*see page* 934)	...	...	...	...	
Mineral Oil	50,899	65,723	88,505	50,402	69,389
Mineral Paints	1,782	3,495	4,991	**	**
§Muriatic Acid	...	...	...	478	1,982
Naphtha	116	157	161	638	1,217
§Nitric Acid	...	...	...	828	
Paraffin Wax	1,819	1,911	2,869	1,538	3,192
§Plumbago	...	...	3	376	386
Plaster of Paris	194	114	351	1,111	1,023
Precious Stones (*see page* 983, *also Jewellery above*)	...	...	...	.	
Quicksilver	7,580	5,739	6,335	10,424	6,622
Salt (*see page* 936)	...	...	...	...	
Silver (*see page* 922, *also Gold above*)	...	...	...	...	
Smelting Material	42,691	165,941	55,814	911	**
Spelter, Concentrates, etc.	...	..	...	...	8,947
Soda and Potash Salts—					
Bi-carbonate of Soda	963	1,829	952	1,211	727
Caustic Soda	1,399	3,008	2,351	...	2,232
Silicate of Soda	57	222	81	...	236
Soda Ash and Nitrate of Potash	663	570	1,334	...	319
Soda Crystals	134	108	119	198	89
Alum	31	65	91	39	64
Potassium Cyanide	55,849	129,964	144,819	161,191	170,646
§Saltpetre	...	...	110	...	154
Stone, etc. (*see page* 931)	...	...	...	...	..
Sulphur	259	788	194	300	298
§Sulphuric Acid	2,347	1,468	2,113	1,108	
Tar and Pitch	1,947	2,251	5,543	**	2,326
Tin (*see page* 918)	...	...	...	...	-
Whiting (*see Chalk above*)	...	...	.	...	-
Zinc	3,306	1,772	2,514	7,386	10,369

* Includes silver foil and leaf. † Includes silver plate. ‡ Included in jewellery. § During years where blanks occur the article, if imported, was probably classified by H.M. Customs under some general heading, and not particularly specified. ** Classified by H.M. Customs under another heading.

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Summary of Values of Minerals and Mineral Products, etc.—continued.

Mineral or Product.	1899.	1900.	1901.	1902.	1903.
EXPORTS.	£	£	£	£	£
Antimony (*see page 926*)	...	...	...	...	...
Asbestos (*see page 935*)	...	...	...	...	...
Brass Wares	...	20	...	...	...
Cement	6	7	...	...	...
Clay, Earthen and China-ware	483	33	48	77	119
Coal (*see page 929*)	...	...	...	...	...
Cobalt (*see page 927*)	...	...	...	...	...
Copper (*see page 914*)	...	...	...	...	...
Fertilisers (*see page 938*)	...	...	...	...	...
Glass, sheet	33	51	...	13	...
Do. wares	1,619	1,107	241	1,084	1,407
Gold, bullion	5,451,368	3,799,124	3,941,876	3,318,958	4,061,767
Do. coin	79,692	1,750,763	2,807,841	4,149,869	4,556,192
Do. plate *	...	...	1,500	†	†
Guano (*see page 936*)	...	...	...	...	...
Iron and Steel (*see page 926*)	...	...	...	...	...
Jewellery	1,321	763	427	2,742	3,965
Lead (*see page 920*)	...	...	...	...	...
Mica (*see page 934*)	...	...	...	...	...
Mineral Oil	77	2,326	142	128	38
Mineral Paints	40	45	...	...	...
Pearls (*see page 933*)	...	...	...	...	...
Precious Stones (*see page 933, also Jewellery above*)	...	...	...	...	...
Salt (*see page 936*)	...	...	...	...	...
Silver (*see page 922*)	...	...	...	...	...
Soda and Potash Salts—					
Potassium Cyanide	...	...	...	1,000	626
Tar and Pitch	18	1	...	...	810
Tin (*see page 918*)	...	...	...	...	...
Zinc	1,005	635	341	801	879

* Includes silver plate. † Included in jewellery.

4.—MINING STATISTICS.

The following tables, containing particulars collected by the Mines and Customs Departments, afford an opportunity of estimating the proportions which the mining industry of Western Australia has of late assumed.

The differences between the table headed "Total Production of Gold, etc.," and the "Output of Gold" (Customs and Mint combined), are to be accounted for by the fact that the exportation of gold started, practically, with the inception of the industry; whereas the mode of collecting returns adopted by the Mines Department is the outcome of a system established some few years ago. Up to that date, therefore, no good basis for an exact comparison can be found. As to the discrepancy which exists at present, the assumption is that the whole of the gold won from the ground is not reported to the Mines Department.

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IMPORTS AND EXPORTS OF MINERALS AND MINERAL PRODUCTS.

Summary of Values of Minerals and Mineral Products Imported and Exported during each of the Five Years, 1899 to 1903.

Mineral or Product.	1899.	1900.	1901.	1902.	1903.
IMPORTS.	£	£	£	£	£
§Ammonium Carbonate	...	...	6	298	161
§Antimony (*see page* 926)	...	...	...	...	..
§Asbestos (*see page* 935)	..	...	...	...	...
§Asphalt	3,507	5,219	8,028	..	...
§Brass, scrap, sheet, and tube	...	...	151	532	1,041
Do. wares	2,474	3,327	2,406	734	
§Carbon (diamonds)	..	..	3,816	2,135	
Cement	18,064	14,385	16,837	34,358	21,233
Chalk (Whiting, etc.)	306	351	312	238	284
Clay (*see page* 931)	...	...	...	...	
Coal, Coke, and Patent Fuel (*see page* 930) ...	...	...	...	...	...
Copper (*see page* 914)	...	...	...	...	..
Do. sulphate of	110	560	822	433	492
Fertilisers (*see page* 938)	...	...	...	...	...
Fireclay (*see page* 931)	..	...	...	...	...
Glass, sheet, plate, etc.	4,262	6,576	6,801	8,551	10,769
Do. wares	16,916	18,892	22,892	28,448	24,259
Gold, bullion	687	...	13	...	..
Do. coin	5,000	..	...	...	...
Do. foil and leaf *	381	489	518	468	633
Do. plate †	1,594	2,335	918	‡	‡
Iron and Steel (*see page* 926)	...	...	...	..	.
§Iron, sulphate of	6	...	...	...	..
Jewellery	16,868	22,982	28,390	38,893	45,239
Lead (*see page* 920)	...	...	...	...	.
Lime, sulphate of (*see Plaster of Paris*) ...	...	...	...	..	
Mica (*see page* 934)	...				
Mineral Oil	50,899	65,723	88,505	50,402	69,360
Mineral Paints	1,782	3,495	4,991	**	**
§Muriatic Acid	...	...	...	478	1,982
Naphtha	116	157	161	638	1,217
§Nitric Acid	...	...	...	828	
Paraffin Wax	1,819	1,911	2,869	1,238	5,193
§Plumbago	...	...	3	376	586
Plaster of Paris	194	114	351	1,111	1,653
Precious Stones (*see page* 933, *also Jewellery above*)	...	...	...	..	
Quicksilver	7,580	5,739	6,335	10,494	6,622
Salt (*see page* 936)	...	...	...	...	
Silver (*see page* 922, *also Gold above*)	...	...	...	..	
Smelting Material	42,691	165,941	55,814	911	**
Spelter, Concentrates, etc.	...	..	...	...	8,347
Soda and Potash Salts—					
Bi-carbonate of Soda	963	1,829	952	1,211	727
Caustic Soda	1,399	3,008	2,351	...	2,238
Silicate of Soda	57	222	81	...	236
Soda Ash and Nitrate of Potash ...	663	570	1,334	...	519
Soda Crystals	134	108	119	198	99
Alum	31	65	91	39	64
Potassium Cyanide	55,849	129,964	144,819	161,191	170,646
§Saltpetre	...	...	110	...	184
Stone, etc. (*see page* 931)	...	...	...	..	.
Sulphur	259	788	194	300	898
§Sulphuric Acid	2,347	1,468	2,113	1,108	
Tar and Pitch	1,947	2,251	5,543	**	2,308
Tin (*see page* 918)	...	...	...	...	
Whiting (*see Chalk above*)	...	...	...	...	.
Zinc	3,306	1,772	2,514	7,396	10,368

* Includes silver foil and leaf. † Includes silver plate. ‡ Included in jewellery. § During years where blanks occur the article, if imported, was probably classified by H.M. Customs under some general heading, and not particularly specified. ** Classified by H.M. Customs under another heading.

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Summary of Values of Minerals and Mineral Products, etc.—continued.

Mineral or Product.	1899.	1900.	1901.	1902.	1903.
EXPORTS.	£	£	£	£	£
Antimony (*see page* 926)	...	...	...	...	...
Asbestos (*see page* 935)	...	...	...	...	...
Brass Wares	...	20	...	...	...
Cement	6	7	...	...	...
Clay, Earthen and China-ware	463	33	48	77	119
Coal (*see page* 929)	...	...	...	...	...
Cobalt (*see page* 927)	...	...	...	...	...
Copper (*see page* 914)	...	...	...	...	...
Fertilisers (*see page* 938)	...	...	...	...	...
Glass, sheet	33	51	...	13	...
Do. wares	1,619	1,107	241	1,084	1,407
Gold, bullion	5,451,368	3,799,124	3,941,876	3,318,958	4,061,767
Do. coin	79,692	1,750,763	2,807,841	4,149,869	4,556,192
Do. plate *	...	...	1,500	†	†
Guano (*see page* 936)	...	...	...	...	...
Iron and Steel (*see page* 926)	...	...	...	...	...
Jewellery	1,321	763	427	2,742	3,965
Lead (*see page* 920)	...	...	...	...	...
Mica (*see page* 934)	...	...	...	...	...
Mineral Oil	77	2,336	142	128	38
Mineral Paints	40	45	...	...	...
Pearls (*see page* 933)	...	...	...	...	...
Precious Stones (*see page* 933, *also Jewellery above*)	...	...	...	...	...
Salt (*see page* 936)	...	...	...	...	...
Silver (*see page* 922)	...	...	...	...	...
Soda and Potash Salts—					
Potassium Cyanide	...	...	...	1,000	626
Tar and Pitch	18	1	...	...	810
Tin (*see page* 918)	...	...	...	...	...
Zinc	1,005	635	341	801	879

* Includes silver plate. † Included in jewellery.

4.—MINING STATISTICS.

The following tables, containing particulars collected by the Mines and Customs Departments, afford an opportunity of estimating the proportions which the mining industry of Western Australia has of late assumed.

The differences between the table headed "Total Production of Gold, etc.," and the "Output of Gold" (Customs and Mint combined), are to be accounted for by the fact that the exportation of gold started, practically, with the inception of the industry; whereas the mode of collecting returns adopted by the Mines Department is the outcome of a system established some few years ago. Up to that date, therefore, no good basis for an exact comparison can be found. As to the discrepancy which exists at present, the assumption is that the whole of the gold won from the ground is not reported to the Mines Department.

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Areas of the Goldfields, Number and Area of Gold Mining Leases during each of the

Goldfields, etc.		Leases in Force on 31st December.				Average Number of Men Employed at Mines. b	
Groups and Fields, etc.	Area of Goldfields.	Number.		Area.			
		1902.	1903.	1902.	1903.	1902.	1903.
	Square Miles.	No.	No.	Acres.	Acres.	No.	No.
Northern Goldfields—							
Kimberley	46,886	3	3	19	19	6	3
Pilbara	34,880	50	47	508	502	187	149
West Pilbara	9,480	7	6	96	66	28	31
Ashburton	14,252	...	...	...	...	...	
Gascoyne	5,061	2	2	36	36	..	
Central Goldfields—							
Peak Hill	12,194	66	59	747	698	329	383
East Murchison	28,242	190	192	2,960	2,746	1,108	1,139
Murchison	20,513	410	398	4,231	3,967	2,009	1,558
Yalgoo	18,921	35	28	417	365	81	74
Eastern Goldfields—							
Mt. Margaret...	42,154	350	268	6,002	4,539	2,137	1,881
North Coolgardie	30,609	353	427	4,738	5,439	1,952	1,917
Broad Arrow	590	89	86	1,151	1,098	303	246
North-East Coolgardie ...	21,542	189	156	2,263	2,027	815	772
East Coolgardie	632	254	231	3,936	3,469	6,254	6,119
Coolgardie	11,974	274	243	3,371	2,984	1,681	1,733
Yilgarn	15,593	37	74	584	985	366	940
Dundas	17,848	68	72	733	793	381	459
Other Goldfields—							
Donnybrook	102	26	24	359	329	64	44
Phillips River	1,300	21	17	419	298	124	125
Other Localities	...	...	5	...	60		75
Total	324,213	a 2,424	c 2,328	a 32,570	c 30,415	17,825	17,329

a Including 18 leases, covering 236 acres, taken up under "The Mining on Private Property
c Including 20 leases of 242 acres taken up under "The

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under the Goldfields Act, and Employment of Labour and Machinery, Years 1902 and 1903.

Machinery and Plant on Mining Leases, etc.						Estimated Value of Plant (1902).		Estimated Value of Plant (1903).	
Batteries (including Government Batteries). Heads of Stamps.		Other Crushing Mills.		Cyanide Leaching Vats.		Government Public Batteries.	Total Government and Private Machinery.	Government Public Batteries.	Total Government and Private Machinery.
1902.	1903.	1902.	1903.	1902.	1903.				
No.	No.	No.	No.	No.	No.	£	£	£	£
25	25	.	.		.	..	5,500	.	5,500
80	105	3	4	10	8	..	24,350	.	41,071
10	20	2	2		4	.	2,500	.	4,700
.	.	.	...		4	..		.	
		...	...		..	...			
50	50	1	1	8	8	6,457	126,754	6,457	107,699
215	250	7	5	40	41	3,305	247,740	4,182	327,780
538	549	2	4	114	133	24,719	395,868	28,805	438,102
70	80	5	4	9	13		26,647		29,470
522	491	5	6	152	164	10,938	496,934	16,421	585,762
398	400	4	4	122	165	33,529	338,213	39,932	357,591
240	210	3	2	38	52	..	120,122		118,212
230	235	13	13	107	70	..	117,325	.	114,493
560	590	91	80	188	217		1,851,644		1,699,702
506	511	6	9	138	158	2,413	228,970	2,413	253,957
185	200	5	6	64	94		76,463	3,647	89,755
120	130	4	3	41	43	9,101	79,576	12,384	103,272
5	5		..	.	...		9,000	.	11,500
40	40	1	1	.	.	.	17,550	..	27,700
60	60	5	6	5	5	...	86,000	..	96,000
3,854	3,951	158	150	1,036	1,179	90,462	4,251,216	114,241	4,412,266

Act, 1898" (62 Vict., No. 29). *b* Not including prospectors and alluvial miners.
Mining on Private Property Act, 1898" (62 Vict., No. 29).

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Production of Crude Gold from Ore (not including that obtained from specimens and by dollying) for each of the Goldfields, as reported to the Mines Department.

Goldfield.	Total for year 1903.		Total previous to 1903.		Total gold production.		
	Ore treated.	Gold therefrom.	Ore treated.	Gold therefrom.	Ore treated.	Gold therefrom.	Average per ton treated.
	tons.	ozs.	tons.	ozs.	tons.	ozs.	ozs.
Kimberley	890	543	15,664	14,162	16,554	14,705	0·89
Pilbara	5,586	9,408	49,298	96,764	54,884	106,172	1·93
West Pilbara	4,673	5,564	3,859	4,727	8,532	10,291	1·21
Gascoyne	...	...	237	221	237	221	0·93
Peak Hill	66,072	35,656	116,610	147,368	182,682	183,024	1·00
East Murchison	154,954	101,614	367,024	327,965	521,978	429,579	0·82
Murchison	179,945	239,467	704,909	809,474	884,854	1,048,941	1·19
Yalgoo	2,412	3,842	61,219	50,975	63,631	54,817	0·86
Mount Margaret	270,797	212,156	780,266	695,599	1,051,063	907,755	0·86
North Coolgardie	210,776	192,989	537,686	707,968	748,462	900,957	1·20
Broad Arrow	35,826	26,960	255,071	199,679	290,897	226,639	0·78
North-East Coolgardie	70,949	56,495	376,913	372,874	447,862	429,369	0·96
East Coolgardie	966,794	1,273,861	2,923,520	4,548,234	3,890,314	5,822,095	1·50
Coolgardie	105,826	81,800	701,170	629,068	806,996	710,868	0·88
Yilgarn	50,624	23,404	394,274	217,505	444,898	240,909	0·54
Dundas	25,953	38,876	223,722	214,270	249,675	253,146	1·01
Phillips River	8,180	7,424	9,582	8,671	17,762	16,095	0·91
Donnybrook	400	58	1,253	1,052	1,653	1,110	0·67
Goldfields generally	...	...	...	1,234	...	1,234	...
Total	2,160,657	2,310,117	7,522,277	9,047,810	9,682,934	11,357,972	1·17

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Quantity of Ore treated and Gold obtained, Number and Area of Gold Mining Leases in force under the Goldfields Act, and Employment of Labour and Machinery on the Western Australian Goldfields for each of the nine years, 1895 to 1903.

Years.	Recorded Gold Yield during the year.			Leases in force at end of year.		Men Employed at Mines.			Alluvial Miners.	Mining Machinery erected to end of year.		
	Ore Treated.	Crude Gold from Ore.	Alluvial and Dollied Gold.	No.	Area.	Reef or Lode. Above ground.	Reef or Lode. Under ground.	Total.		Heads of Stampers.	Other Mills.	Cyanide Leaching Vats.
	tons.	ozs.	ozs.		acres.					No.	No.	No.
1895	80,575	77,236	154,277	6,331	98,706	*a*	*a*	21,416	*a*	841	19	4
1896	166,780	252,222	29,043	8,021	119,294	*a*	*a*	20,236	*a*	1,479	35	10
1897	415,424	624,201	19,413	4,001	59,108	*a*	*a*	17,903	*a*	2,140	28	19
1898	762,083	960,249	81,463	2,835	39,394	5,939	7,127	13,066	6,757	3,001	60	298
1899	1,173,437	1,539,212	61,551	*b* 2,625	*b* 36,336	7,525	8,555	16,080	4,920	3,338	83	368
1900	1,289,347	1,472,990	40,926	*c* 2,561	*c* 36,024	8,150	8,597	16,747	3,639	3,484	170	621
1901	1,572,808	1,810,277	31,221	*d* 2,503	*d* 34,498	8,130	8,625	16,755	3,016	3,674	172	876
1902	1,888,951	2,087,044	30,197	*e* 2,424	*e* 32,570	8,435	9,390	17,825	2,651	3,854	158	1,036
1903	2,160,657	2,310,117	14,752	*f* 2,328	*f* 30,415	7,980	9,349	17,329	3,387	3,951	150	1,179

a Information not available. *b* Inclusive of 16 leases, covering 218 acres, taken up under "The Mining on Private Property Act, 1898." *c* Including 15 leases, covering 210 acres, taken up under "The Mining on Private Property Act, 1898." *d* Including 21 leases, covering 306 acres, taken up under "The Mining on Private Property Act, 1898" (62 Vict., No. 29). *e* Inclusive of 18 leases, covering 236 acres, taken up under "The Mining on Private Property Act, 1898" (62 Vict., No. 29). *f* Including 20 leases, covering 242 acres, taken up under "The Mining on Private Property Act, 1898" (62 Vict., No. 29).

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Total Production of Gold, in fine ounces, to 31st December, 1904, showing the Quantity reported to the Mines Department and the sterling Value thereof.

Goldfield.	1904.	1903.	1902.	1901.	1900.	1899.	1898.	1897.	Previous to 1897.	Total to date.
	ozs.	ozs	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.
Kimberley	205·84	627·16	297·65	269·24	510·95	820·48	393·77	206·13	11,391·78	14,722·00
Pilbara	8,029·65	9,602·41	10,457·86	9,303·23	14,865·36	17,258·52	12,894·51	6,105·85	25,469·63	113,987·02
West Pilbara	3,427·71	5,081·09	1,910·26	209·63	853·13	1,730·86	292·26	769·41	302·29	14,526·64
Ashburton	509·96	813·61	840·38	899·12	1,524·39	1,484·22	447·86	271·02	...	6,790·56
Gascoyne	...	...	...	81·57	66·20	298·59	12·08	12·12	...	470·56
Peak Hill	14,113·57	30,218·94	32,211·97	18,358·88	23,770·86	28,585·59	13,891·49	9,736·09	9,903·32	180,290·71
East Murchison	93,590·92	87,205·76	78,460·10	69,097·84	57,878·56	40,291·59	33,171·89	18,782·09	2,304·48	480,783·23
Murchison	214,408·13	204,920·98	181,148·66	132,866·01	94,578·70	72,058·51	70,902·41	55,747·78	125,630·08	1,152,256·26
Yalgoo	2,353·41	3,255·93	5,029·70	8,373·24	9,037·08	10,856·76	2,951·23	3,091·53	6,465·24	51,414·12
Mt. Margaret	183,523·25	180,088·22	181,573·93	172,238·77	130,332·50	71,499·40	44,477·29	20,210·78	4,465·91	988,410·05
North Coolgardie	145,064·61	165,626·14	158,981·51	134,418·68	95,519·51	104,639·17	65,197·11	54,894·90	24,120·84	948,462·47
Broad Arrow	22,180·19	25,399·18	16,906·55	31,428·66	46,906·61	43,114·47	24,803·94	12,939·91	3,166·99	231,846·50
North-East Coolgardie ...	50,955·00	53,325·20	57,665·24	57,691·77	63,288·93	100,933·13	152,476·40	36,189·16	8,029·85	580,554·69
East Coolgardie	1,050,922·89	1,081,109·24	961,206·89	898,551·95	660,185·49	769,684·64	377,869·84	265,483·83	128,668·50	6,193,683·27
Coolgardie	63,199·76	71,447·99	75,496·29	76,809·51	91,618·21	112,978·50	89,166·87	57,962·16	66,362·67	705,041·96
Yilgarn	25,568·64	20,014·19	19,874·94	24,097·94	26,082·31	14,646·12	10,528·85	15,273·27	84,266·06	240,292·32
Dundas	31,830·27	34,047·59	29,860·58	33,611·77	36,753·23	39,553·02	32,919·75	17,250·95	3,560·40	259,387·56
Phillips River	4,016·63	6,516·83	7,299·05	649·09	34·89	...	...	...	...	18,513·49
Donnybrook	...	49·20	86·56	3·50	405·34	457·58	13·11		...	1,015·29
Goldfields generally	...	...	...	114·91	131·11	1,144·10	...	...	.	1,390·12
Total { *Fine Gold* ...	1,913,835·44	1,979,299·66	1,819,308·12	1,669,072·31	1,354,343·36	1,432,035·25	931,910·66	574,925·98	509,108·04	12,183,838·82
Total { *Sterling Value*	£8,129,456	£8,407,531	£7,727,980	£7,089,769	£5,752,885	£6,081,899	£3,958·505	£2,442,130	£2,162,553	£51,758,658

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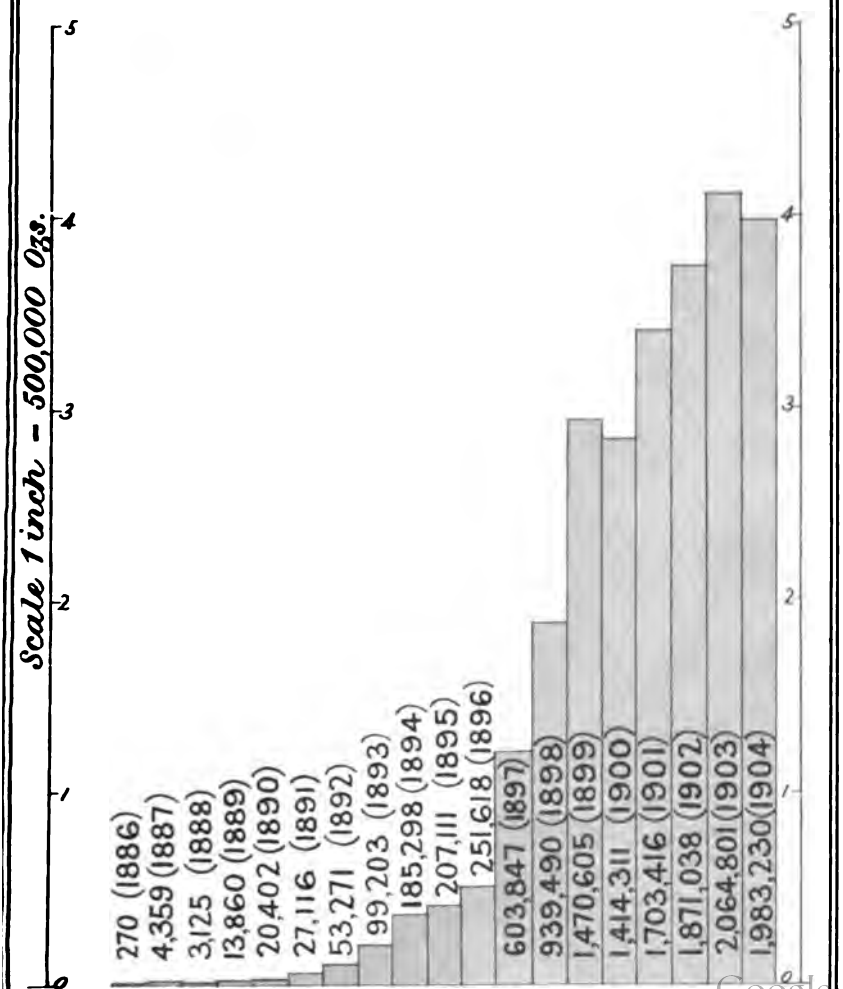
ANNUAL GOLD PRODUCTION OF WESTERN AUSTRALIA

FINE OUNCES



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Synopsis of the Returns from the Goldfields to the 31st December, 1904.

Year.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.
	fine ozs.	fine ozs.	tons.	fine ozs.
Previous to 1897 ...	...	5,751·31	420,226·04	495,546·37
1897	11,051·76	5,466·59	415,424·52	558,407·63
1898	66,796·83	6,078·98	762,083·63	859,034·85
1899	45,032·58	10,030·83	1,173,436·69	1,376,971·84
1900	24,770·87	11,841·83	1,289,347·00	1,317,730·66
1901	18,050·73	10,333·41	1,572,807·96	1,640,688·17
1902	13,604·67	12,342·92	1,888,950·12	1,793,360·53
1903	12,502·40	8,946·52	2,160,656·65	1,957,850·74
1904	7,963·76	10,441·97	2,432,171·27	1,895,429·71
Total ..	199,773·60	81,234·36	12,115,103·88	11,895,020·50

N.B.—The following "Ounces from Unknown Tons," brought forward from years previous to 1897, are *not* included in the abovee figures :—

	Fine ozs.
From Marble Bar	1,862·55
,, Peak Hill	4,071·84
,, Cue	959·01
,, Yerilla	246·01
,, Broad Arrow	223·65
,, Kalgoorlie	447·30
Total	7,810·36

Annual Gold Production of Western Australia since 1886, comprising Raw Gold entered for Export, plus Raw Gold received at the Perth Branch of the Royal Mint (from May, 1899); also amount of Dividends paid.

Period.	Quantity of Raw Gold.				Value.	Amount of Dividend from Gold won, paid by W.A. Gold Mining Companies.
	Exported.	Received at Perth Mint.	Total.			
	Crude ozs.	Crude ozs.	Crude ozs.	Fine ozs.	£	£
Year 1886 ...	302	...	302	270	1,148	...
Do. 1887 ...	4,873	...	4,873	4,359	18,517	...
Do. 1888 ...	3,493	...	3,493	3,125	13,273	...
Do. 1889 ...	15,493	...	15,493	13,860	58,874	...
Do. 1890 ...	22,806	...	22,806	20,402	86,663	1,250
Do. 1891 ...	30,311	...	30,311	27,116	115,182	5,326
Do. 1892 ...	59,548	...	59,548	53,271	226,282	1,875
Do. 1893 ...	110,891	...	110,891	99,203	421,386	34,350
Do. 1894 ...	207,131	...	207,131	185,298	787,098	110,642
Do. 1895 ...	231,513	...	231,513	207,111	879,749	82,183
Do. 1896 ...	281,265	...	281,265	251,618	1,068,807	168,216
Do. 1897 ...	674,994	...	674,994	603,847	2,564,977	507,732
Do. 1898 ...	1,050,184	...	1,050,184	939,490	3,990,699	605,949
Do. 1899 ...	1,434,570	209,307	1,643,877	1,470,605	6,246,733	2,066,015
Do. 1900 ...	999,767	581,183	1,580,950	1,414,311	6,007,610	1,396,089
Do. 1901 ...	1,019,109	860,281	1,879,390	1,703,416	7,235,652	1,093,605
Do. 1902 ...	822,827	1,354,615	2,177,442	1,871,038	7,947,663	1,424,272
Do. 1903 ...	983,687	1,452,624	2,436,311	2,064,801	8,770,720	2,024,152
Do. 1904 ...	969,937	1,403,084	2,373,021	1,983,230	8,424,226	2,050,547
From 1886 to 31st Dec., 1904	8,922,701	5,861,094	14,783,795	12,916,371	54,865,259	11,572,203

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Return of Gold Bullion entered for Export and received at the Perth Branch of the Royal Mint, from 1st January, 1886, to 31st December, 1904, showing the Quantity obtained, each year, from the respective Goldfields, the estimated Fine Contents thereof, and the Total Annual Value.

Year.	Kimberley.		Pilbara.		a West Pilbara.		Ashburton.		b Gascoyne.		c Peak Hill.	
	Gross Weight.	Fine Contents.	Gross Weight.	Fine Contents.	Gross Weight.	Fine Contents.	Gross Weight.	Fine Contents.	Gross. Weight.	Fine Contents.	Gross Weight.	Fine Contents.
	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.
1886 ...	302·00	270·17	...	...	...	...	...	...	...	...	...	...
1887 ...	4,873·00	4,359·37	...	...	...	...	...	...	...	...	...	...
1888 ...	3,493·00	3,124·82	...	...	...	...	...	...	...	...	...	...
1889 ...	2,464·00	2,204·28	11,170·00	9,992·63	...	...	...	...	...	...	...	...
1890 ...	4,474·00	4,002·42	16,055·31	14,363·01	...	...	...	...	...	...	...	...
1891 ...	2,699·62	2,415·07	11,875·00	10,623·32	...	...	838·72	750·31	...	...	...	...
1892 ...	1,088·85	974·08	12,892·80	11,533·84	...	...	·70	·63	...	...	...	...
1893 ...	1,621·70	1,450·77	11,698·50	10,465·43	...	...	467·74	418·43	...	...	...	...
1894 ...	588·64	526·59	16,254·50	14,541·20	...	...	285·27	255·20	...	...	...	...
1895 ...	876·68	784·27	19,522·40	17,464·65	...	...	540·76	483·76	...	...	...	...
1896 ...	891·86	797·85	11,810·11	10,565·27	...	...	669·17	598·64	...	...	...	...
1897 ...	554·07	495·67	11,955·87	10,695·67	...	...	1,038·18	928·75	...	...	5,110·00	4,571·38
1898 ...	287·88	257·54	11,662·56	10,433·27	2,028·27	1,814·48	449·88	402·46	...	...	13,736·85	12,288·93
1899 ...	1,122·81	1,004·46	20,526·20	18,362·65	1,955·51	1,749·39	521·30	466·36	418·72	374·59	31,995·34	28,622·88
1900 ...	676·62	605·30	17,140·51	15,333,82	721·68	645·61	524·36	469·09	86·10	77·02	28,669·86	25,647·93
1901 ...	663·37	601·26	11,320·40	10.260·43	480·86	435·84	63·92	57·94	25·83	23·41	21,607·47	19,584·29
1902 ...	441·65	379·50	10,706·08	9,199·50	3,284·37	2,822·20	...	...	124·86	107·29	32,737·17	28,130·48
1903 ...	511·75	433·71	14,220·20	12,051·78	6,481·58	5,493·23	135·30	114·67	36·29	30·76	34,224·50	29,598·92
1904 ...	37·69	31·51	8,293·58	6,931·27	5,170·06	4,320·82	150·73	125·96	13·10	10·95	20,909·99	17,475·33
Total ...	27,669·19	24,718·64	217,108·97	192,817·74	20,122·33	17,251·57	5,696·03	5,072·20	704·90	624·12	189,691·18	165,920·14

a. Prior to 1st May, 1898, included with Pilbara. b. Prior to 1st March, 1899, included with Ashburton. c. From 1st August, 1897.

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Return of Gold Bullion entered for Export, and received at the Perth Branch of the Royal Mint—continued.

Year.	a East Murchison.		Murchison.		b Yalgoo.		a Mt. Margaret.		c North Coolgardie.		d Broad Arrow.	
	Gross Weight.	Fine Contents.	Gross Weight.	Fine Contents.	Gross Weight.	Fine Contents.	Gross Weight.	Fine Contents.	Gross Weight.	Fine Contents.	Gross Weight.	Fine Contents.
	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.
1886 ..	...	...	...	...	...	...	...	...	...	...	...	...
1887 ...	...	...	...	...	...	...	...	...	...	...	...	...
1888 ...	...	...	...	...	...	...	...	...	...	...	...	...
1889 ..	...	...	...	...	...	...	...	...	...	...	...	...
1890 ...	...	...	...	...	...	...	...	...	...	...	...	...
1891 ...	...	...	2,064·43	1,846·83	...	...	...	...	...	...	...	...
1892 ...	...	...	24,356·47	21,789·19	...	...	...	...	...	...	...	...
1893 ...	...	...	21,210·45	18,974·77	...	...	...	...	...	...	...	...
1894 ...	...	...	52,946·32	47,365·54	...	...	...	...	...	...	...	...
1895 ...	...	...	65,477·26	58,575·66	...	...	...	...	...	...	...	...
1896 ...	...	...	71,282·09	63,769·17	...	...	...	...	17,160·51	15,351·71	...	...
1897 ...	9,453·81	8,457·34	82,891·85	74,154·67	2,034·23	1,819·81	8,685·73	7,770·22	74,556·12	66,697·57	4,159·27	3,720·87
1898 ...	39,563·35	35,393·19	93,667·16	83,794·22	3,756·38	3,360·44	43,266·69	38,706·19	70,625·32	63,181·09	24,631·44	22,035·17
1899 ...	41,569·66	37,188·03	93,518·03	83,660·80	10,879·58	9,732·83	81,817·07	73,193·17	105,688·76	94,548·69	44,524·29	39,831·22
1900 ...	58,369·50	52,217·09	108,696·58	97,239·47	9,368·57	8,381·08	141,523·00	126,6 5·83	106,193·38	95,000·12	47,860·59	42,815·87
1901 ...	77,604·04	70,337·70	144,693·86	131,145·66	9,198·51	8,337·22	198,897·70	180,192·63	142,798·10	129,427·40	29,104·78	26,379·59
1902 ...	91,976·45	79,033·73	212,570·34	182,657·99	5,679·41	4,880·23	216,637·14	186,152·50	187,272·79	160,920·24	18,380·47	15,794·01
1903 ...	102,903·76	87,212·11	245,850·83	208,361·41	1,743·54	1,477·67	225,192·57	190,853·28	198,820·49	168,502·64	27,665·13	23,416·53
1904 ...	102,719·92	85,847·21	260,745·81	217,915·83	3,345·82	2,796·23	219,052·21	183,070·82	168,871·81	141,133·01	25,103·02	20,979·61
Total...	524,160·49	455,686·40	1,479,972·08	1,291,251·21	40,006·04	40,785·51	1,134,982·11	986,544·64	1,071,987·28	934,762·47	221,428·99	195,002·87

a. From 1st August, 1897. b. Prior to 1st April, 1897, included with Murchison. c. Prior to 1st May, 1896, included with Coolgardie. d. From 1st September, 1897.

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Return of Gold Bullion entered for Export and received at the Perth Branch of the Royal Mint, etc.—continued.

Year.	a North-East Coolgardie.		a East Coolgardie.		b Coolgardie.		Yilgarn.		c Dundas.	
	Gross Weight.	Fine Contents.	Gross Weight.	Fine Contents.	Gross Weight.	Fine Contents.	Gross Weight.	Fine Contents.	Gross Weight.	Fine Contents.
	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.
1886	...	...	...	...	...	...	...	...	...	...
1887	...	...	...	...	...	...	...	...	...	...
1888	...	...	...	...	...	...	...	...	...	...
1889	...	...	...	...	...	...	1,858·50	1,662·61	...	...
1890	...	...	...	...	...	...	2,277·00	2,036·99	...	...
1891	...	...	...	...	...	...	12,833·30	11,480·61	...	...
1892	...	...	...	...	...	...	21,209·40	18,973·91	...	...
1893	...	...	...	...	...	...	75,744·55	67,760·73	147·97	132·37
1894	...	...	...	...	105,329·82	94,227·58	31,498·38	28,178·31	228·38	204·31
1895	...	...	...	...	125,105·94	111,919·21	19,747·75	17,666·25	241·90	216·40
1896	4,113·13	3,679·63	85,287·06	76,297·42	69,135·19	61,848·03	16,565·25	14,819·20	4,350·31	3,891·77
1897	32,905·82	29,437·40	300,037·24	268,411·95	104,306·37	93,312·00	17,994·48	16,097·78	19,310·81	17,275·36
1898	125,240·49	112,039·58	450,312·27	402,847·31	127,227·06	113,816·75	11,696·18	10,463·35	32,031·82	28,655·52
1899	81,171·18	72,615·37	923,617·70	826,264·21	141,170·08	126,290·11	16,805·04	15,033·71	45,164·95	40,404·36
1900	52,129·12	46,634·47	810,906·78	725,433·53	119,781·46	107,155·95	29,418·10	26,317·30	40,687·56	36,398·91
1901	50,556·53	45,822·74	1,033,6[illegible]9·64	936,883·49	88,600·54	80,304·56	29·488·07	26,727·00	38,796·25	35,163·62
1902	54,540·57	46,865·74	1,172,404·84	1,007,426·94	97,477·20	83,760·46	25,877·53	22,236·11	36,210·99	31,115·47
1903	47,733·54	40,454·74	1,358,374·81	1,151,238·24	90,854·23	77,000·01	26,856·28	22,761·00	41,553·90	35,217·41
1904	39,865·47	33,817·19	1,363,576·80	1,139,596·36	74,392·94	62,173·18	35,889·41	29,994·24	39,702·61	33,181·09
Total ...	488,255·90	430,866·86	7,498,187·14	6,534,399·45	1,143,380·83	1,011,807·84	375,759·31	332,209·10	296,427·45	261,856·59

a Prior to 1st May, 1896, included with Coolgardie. b Declared 5th April, 1894, to which date included with Yilgarn.
c Prior to 1893 included with Yilgarn.

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Return of Gold Bullion entered for export and received at the Perth Branch of the Royal Mint, etc.—continued.

Year.	a Phillips River.		b Donnybrook.		Goldfields Generally.		Grand Total.		
	Gross Weight.	Fine Contents.	Gross Weight.	Fine Contents.	Gross Weight.	Fine Contents.	Gross Weight.	Fine Contents.	‡ Value.
	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	£ s. d.
1886							302·00	270·17	1,147 13 [illegible]
1887							4,873·00	4,359·37	18,517 [illegible]
1888							3,493·00	3,124·82	13,273 7 10
1889							15,492·50	13,859·52	58,871 [illegible]
1890							22,806·31	20,402·43	86,663 19 [illegible]
1891							30,311·07	27,116·14	115,182 0 10
1892							59,548·31	53,371·65	226,283 11 [illegible]
1893							110,890·91	99,203·50	421,835 [illegible]
1894							207,131·31	185,298·73	787,098 19 [illegible]
1895							231,512·69	207,110·30	879,748 [illegible]
1896							281,265·33	251,618·69	1,068,808 [illegible]
1897							674,993·83	603,846·44	2,564,976 13 [illegible]
1898							1,050,183·60	939,489·49	3,990,697 13 10
1899			506·11	452·76	904·39	809·07	1,643,876·72	1,470,604·66	6,216,[illegible] 10 7[illegible]
1900			265·55	237·50	7,930·30	7,094·91	1,583,950·18	1,419,310·86	6,007,610 13 [illegible]
1901			4·64	4·20	1,900·00	1,727·54	1,879,390·51	1,703,416·52	7,235,653 [illegible]
1902	8,575·86	7,369·09	72·83	62·58	2,471·02	2,123·29	2,177,441·52	1,871,037·25	7,947,661 [illegible]
1903	8,941·21	7,577·77	97·52	82·64	3,413·37	2,892·88	2,436,310·30	2,064,801·40	8,770,718 17 [illegible]
1904	3,570·91	2,984·35			1,609·50	1,345·11	2,373,521·38	1,983,230·07	8,424,225 17 [illegible]
Total	21,087·98	17,931·21	946·65	839·74	18,235·14	15,992·80	14,783,794·99	12,916,871·00	54,865,256 11 9

‡ To 1900, at £3 16s. per oz.; 1901, at £3 17s. per oz.; 1902, at £3 13s. per oz., 1903, at £3 12s. per oz., 1904, at £3 11s. per oz.
a Prior to 1902 included in Goldfields generally. b From 1st March, 1899.

Quantity of Crude Gold Exported from Western Australia to each State during each of the years, 1897 to 1903.

State.	1897.	1898.	1899.	1900.	1901.	1902.	1903.
	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.
United Kingdom	191,591	439,877	710,258	736,580	931,398	685,544	782,591
Victoria	423,299	545,415	514,199	191,632	60,466	52,605	[illegible]
New South Wales ...	611	9,047	161,333	31,435	20,651	65,436	[illegible]
South Australia	59,461	55,793	48,452	29,995	6,580	4,579	64
Queensland	...	33	167	355	..	3	..
Tasmania	...	...	...	.	..	1	..
New Zealand	10	...	...	...	..	...	.
France	17	3	...	9,770	.	..	
Germany	5	...	162	...	...	3,553	..
Italy	...	16	...	...	.		
Denmark	...	...	...	.	26		
Belgium	..	...	...	..		11,102	[illegible]
India	...	...	...	...	4,734	[illegible]	
Singapore	...	...	...	...		3	
Totals	674,994	1,050,184	1,434,571	999,767	1,023,843	897,434	[illegible]

Quantity of Crude Gold, the Produce of Western Australia, received at the Perth Branch of the Royal Mint during each of the Years 1899 to 1904, distinguishing Goldfields from which received.*

Goldfield.	1899.*	1900.	1901.	1902.	1903.	1904.	Total
	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.
Kimberley	308	644	663	440	512	37	[illegible]
Pilbara	530	7,494	11,280	10,706	14,218	8,293	[illegible]
West Pilbara ...	...	137	394	3,284	6,482	5,169	[illegible]
Ashburton	282	474	55	..	135	150	[illegible]
ascoyne	86	86	19	125	36	13	[illegible]
eak Hill	16,274	18,019	21,351	32,637	34,685	20,910	[illegible]
ast Murchison ..	3,758	32,050	44,747	62,358	77,089	77,237	[illegible]
Murchison	24,676	48,540	43,025	47,628	64,127	63,040	[illegible]
Yalgoo	5,190	8,852	9,191	5,117	1,687	3,347	[illegible]
Mount Margaret ...	16,912	67,748	126,704	144,663	148,007	143,453	[illegible]
North Coolgardie ...	44,779	88,688	135,493	182,543	197,229	166,989	[illegible]
Broad Arrow	8,503	14,376	18,829	15,903	21,528	24,720	[illegible]
North-East Coolgardie	16,701	40,503	43,056	53,902	42,650	39,401	[illegible]
East Coolgardie ...	33,051	139,846	263,515	636,537	685,290	699,475	[illegible]
Coolgardie	27,611	51,607	78,026	94,134	82,218	73,078	[illegible]
Yilgarn	9,071	28,649	29,434	25,874	26,856	35,854	[illegible]
Dundas	474	31,583	32,826	31,089	40,006	37,510	[illegible]
Phillips River ‡ ...	...	.	...	5,147	6,421	2,450	[illegible]
Donnybrook	196	266	5	67	98		[illegible]
Locality unspecified...	904	1,621	1,668	2,462	3,350	1,608	[illegible]
Grand Total ...	209,306	581,183	860,281	1,354,616	1,452,624	1,403,084	[illegible]
Percentage of total output	†18·11	36·76	45·77	62·21	59·62	59·13	[illegible]
Value in sterling	£762,547	£2,096,213	£3,033,301	£4,791,304	£5,139,852	£4,955,870	[illegible]
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Average value per oz.	3 12 10	3 12 2	3 10 6	3 10 9	3 10 9	3 10 8	[illegible]
Coin and Bullion issued from the Mint ...	£690,995	£1,945,806	£2,910,558	£4,675,109	£5,164,336	£4,961,186	[illegible]

* Operations commenced in May, 1899. † Percentage of total output from middle of May to 31st December. ‡ Prior to 1902, included in "Locality unspecified."

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Ore and Minerals, other than Gold, produced in Western Australia, as reported to the Mines Department during 1903 and 1904, and previous years.

(As the collection of Statistics of Minerals, other than Gold, was only commenced by the Mines Department in 1899, the Mineral production previous to that year has been taken from the Customs Records.)

Goldfield or Mining District.	Previous to 1903.		During 1903.		During 1904.		Total.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	tons.	£	tons.	£	tons.	£	tons.	£
BLACK TIN.								
Greenbushes	3,028	160,826	525	34,362	534	34,462	4,087	229,650
Marble Bar	1,150	71,456	292	21,528	321	24,355	1,763	117,339
Total, Black Tin	4,178	232,282	817	55,890	855	58,817	5,850	346,989
COPPER ORE.								
Day Dawn	16	167					16	167
Mt. Malcolm *a*	14,426	82,646	18,965	45,557	500	900	33,891	129,103
Northampton *b*	174	2,399					174	2,399
Phillips River *c*	1,431	14,881	1,562	10,984	3,469	24,280	6,462	50,145
West Pilbara *d*	12,340	112,778					12,340	112,778
Total, Copper Ore	28,387	212,871	20,527	56,541	3,969	25,180	52,883	294,592
IRONSTONE.								
West Pilbara *e*	100	300					100	300
East Coolgardie *f*	450	247					450	247
Sundry Localities *g h*	50,022	33,236	220	88	1,441	577	51,683	33,901
Total, Ironstone	50,572	33,783	220	88	1,441	577	52,233	34,448

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Ores and Minerals other than Gold, produced in Western Australia, etc.—continued.

Goldfield or Mining District.	Previous to 1903.		During 1903.		During 1904.		Total.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	tons.	£	tons.	£	tons.	£	tons.	£
LEAD ORE.								
Ashburton *i*	9	109	...	...	...	...	9	109
Northampton *j*	351	1,445	...	...	...	...	351	1,445
Total, Lead Ore	360	1,554	...	...	...	...	360	1,554
COAL.								
Collie River	434,974	237,296	133,426	69,128	138,550	67,174	706,950	373,598
LIMESTONE.								
Yilgarn *k*	2,447	1,532	102	75	...	...	2,549	1,607
Fremantle *h l*	54,363	10,588	1,178	103	13,397	1,699	68,938	12,390
Total, Limestone	56,810	12,120	1,280	178	13,397	1,699	71,487	13,997
DIAMONDS.								
Nullagine	...	24	...	...	...	...	...	24
SILVER-LEAD ORE.								
Ashburton *m*	57	429	...	...	..	..	57	429

a Murrin Murrin *b* Arrino, Geraldine, and Yandanooka. *c* Harbour View, Mt. Desmond, Mt. Stennett, and Ravensthorpe. *d* Croydon, Egina, Roebourne, and Whim Creek. *e* Whim Creek. *f* Boulder. *g* Avon, Clackline, Coate's Caddock, Greenbushes, and Werribee. *h* Ore flux received by Fremantle Smelter, Ltd. *i* Rainbow Silver Mine. *j* Narra Tarra, Northampton, and Victoria. *k* Southern Cross. *l* This does not include limestone quarried for other purposes than specified in note *h*. *m* Rainbow Silver Mine.

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Ores other than Gold (Products of the State) Exported between the Years 1850-1903, inclusive.

Years.	Copper Ore. Where raised. Northampton. Quantity.	Copper Ore. Where raised. Northampton. Value.	Copper Ore. Where raised. West Pilbara. Quantity.	Copper Ore. Where raised. West Pilbara. Value.	Copper Ore. Where raised. Phillips River. Quantity.	Copper Ore. Where raised. Phillips River. Value.	Copper Ore. Where raised. Localities unspecified. Quantity.	Copper Ore. Where raised. Localities unspecified. Value.	Lead Ore. Where raised. Northampton. Quantity.	Lead Ore. Where raised. Northampton. Value.	* Tin Ore. Where raised. Greenbushes. Quantity.	* Tin Ore. Where raised. Greenbushes. Value.	* Tin Ore. Where raised. Pilbara. Quantity.	* Tin Ore. Where raised. Pilbara. Value.	† Mica. Value.
	Tons.	£	Tons.	£	Tons.	£	Tons.	£	Tons.	£	Tons.	£	Tons.	£	£
1850 to 1855 ...	2	34	...	...	...	...	...	...	30	309	...	...	...	...	...
1856 to 1860 ...	2,029	34,613	...	...	...	...	...	...	112	1,120	...	...	...	...	...
1861 to 1865 ...	3,918	61,589	...	...	...	...	...	...	1,101	12,416	...	...	...	...	...
1866 to 1870 ...	1,138	17,078	...	...	...	...	...	...	4,185	50,220	...	...	...	...	...
1871 to 1875 ...	329	4,916	...	...	...	...	...	...	6,182	74,187	...	...	...	...	...
1876 to 1880 ...	349	5,242	...	...	...	...	...	...	14,461	165,842	...	...	...	...	...
1881 to 1885 ...	244	3,660	...	...	...	...	...	...	5,393	40,945	...	...	...	...	...
1886 to 1890 ...	480	7,608	...	...	...	...	...	...	2,078	18,942	73	5,700	...	...	...
1891	...	...	262	4,462	...	...	...	...	25	250	204	10,200	...	...	...
1892	155	2,377	412	6,319	...	...	...	...	30	150	265	12,843	...	...	25
1893	...	...	50	606	...	...	...	...	...	...	172	7,664	56	3,470	4
1894	...	...	...	...	...	...	...	...	...	...	371	14,325	19	949	...
1895	24	120	802	12,832	...	...	...	...	...	...	277	9,703	...	...	3
1896	...	...	6	100	...	...	...	...	...	...	137	4,338	...	...	...
1897	21	302	65	731	...	...	...	...	...	4	96	3,275	...	...	209
1898	74	932	281	3,334	...	...	...	...	5	33	68	2,760	...	...	...
1899	586	9,473	1,405	31,979	...	...	...	...	16	96	278	21,138	30	2,025	50
1900	...	...	544	10,696	105	2,411	197	3,355	26	242	102	8,032	368	30,146	3
1901	1	10	1,058	26,464	1,205	22,107	397	6,322	...	...	68	4,895	439	34,600	...
1902	20	330	68	1,698	162	2,469	33	489	...	...	31	2,870	248	19,698	...
1903	25	460	4	180	302	3,538	15	349	...	...	25	1,868	267	20,988	...
Total ...	9,395	148,744	4,957	99,401	1,774	30,525	642	10,515	33,644	364,756	2,167	110,811	1,427	111,876	294

* No tin ore exported prior to 1889. † No mica exported prior to 1892.

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Metals other than Gold (Products of the State) Exported between the Years 1850-1903, inclusive.

Years.	Copper Ingot.		Silver.		Tin Ingot.		Pig Lead.*		Ores not Otherwise Enumerated.		Precious Stones.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Tons.	£	Ozs.	£	Tons.	£	Tons.	£	Tons.	£	Carats.	£
1850 to 1855	...	...	...	...	...	...	311	6,315	...	...	...	...
1856 to 1860	...	...	...	...	...	...	266	5,325	...	...	...	...
1861 to 1865	...	...	...	...	...	...	...	...	...	...	...	...
1866 to 1870	...	...	...	...	...	...	3	50	...	...	...	...
1871 to 1875	...	...	...	...	...	...	5	89	...	...	...	...
1876 to 1880	...	...	...	...	...	...	13	259	...	...	..	...
1881 to 1885	...	...	...	...	...	...	1	20	...	...	...	...
1886 to 1890	...	...	...	...	...	...	8	160	...	...	...	...
1891 ...	...	...	...	...	...	...	...	...	...	...	...	...
1892 ...	...	...	...	...	...	...	.	...	...	...	...	...
1893 ...	...	...	...	...	...	...	..	...	...	...	...	...
1894 ...	...	...	...	...	...	...	...	...	...	...	...	...
1895 ...	...	...	...	...	...	...	...	...	...	...	...	...
1896 ...	...	...	...	...	...	...	.	...	...	...	...	...
1897 ...	...	...	...	...	...	...	½	11	...	...	...	...
1898 ...	...	...	...	...	...	...	..	...	...	...	...	...
1899 ...	...	...	...	...	...	...	77	1,077	...	...	...	...
1900 ...	249	17,475	28,749	3,594	142	18,872	...	...	5	85	...	...
1901 ...	881	55,866	66,869	7,609	97	12,607	...	...	†	4	...	...
1902 ...	175	7,918	83,293	9,190	141	16,380	...	...	3	47	†	1,000
1903 ...	1,075	33,288	168,113	19,153	235	29,277	...	...	22	230	...	...
Total ...	2,380	114,547	341,024	39,546	615	77,136	684½	13,306	†	366	†	1,000

* No Pig Lead exported prior to 1858. † Declared weight not stated.

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Mining Accidents on the Western Australian Goldfields, and Mining Districts, and Coalfield during the Year 1903.

Goldfield or District.	Cause of Death or Injury sustained.										Total.	
	By Explosives.		By Falls of Ground.		Accidents in Shafts		Other Accidents Underground.		Accidents on Surface.			
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Kimberley	...	...	...	...	..	...	...	...	...	...	...	...
Pilbara	...	...	...	...	2	...	...	...	...	...	2	...
West Pilbara	...	...	...	...	...	...	...	...	...	...	...	...
Ashburton	...	...	...	..	...	...	...	...	...	...	...	...
Gascoyne	...	...	...	...	...	...	...	...	...	...	...	...
Peak Hill	...	2	...	...	...	1	...	...	...	...	...	3
East Murchison	2	3	1	1	...	3	..	...	1	1	4	8
Murchison	1	4	...	1	...	1	1	2	2	3	4	11
Yalgoo	...	...	...	...	...	...	...	...	...	...	...	...
Mount Margaret	1	4	...	7	2	4	...	4	1	4	4	23
North Coolgardie	2	1	2	1	...	4	...	2	...	7	4	15
Broad Arrow	...	...	1	1	1	1	2	...	...	...	4	2
North-East Coolgardie	...	...	...	1	1	...	...	2	...	2	1	5
East Coolgardie	...	3	6	13	3	8	4	31	1	35	14	90
Coolgardie	1	1	1	3	...	3	1	1	..	1	3	9
Yilgarn	...	...	...	1	...	...	1	...	...	...	1	1
Dundas	...	...	...	...	...	...	...	...	...	...	...	...
Donnybrook	...	...	...	...	...	...	...	...	...	...	..	...
Phillips River	...	...	...	...	...	...	...	...	...	...	...	...
Northampton	...	...	...	...	...	...	...	...	...	...	...	...
Greenbushes	...	...	1	4	...	...	...	...	...	...	1	4
Collie	...	2	1	2	...	...	...	4	...	...	1	8
Total	7	20	13	35	9	25	9	46	5	53	43	179

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Summary of Mining Accidents in Western Australia during the Years 1897-1903, inclusive.

Goldfield or District.	1897.		1898.		1899.		1900.		1901.		1902		1903.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Kimberley ...			...	...	...	...	...	...	...	...	...	...	...	...
Pilbara			...	...	1	1	...	...	...	1	...	...	2	...
West Pilbara ...	2	1	1	1	...	...	...	...	...	...	...	...	...	...
Ashburton ...			...	...	...	...	...	...	...	...	...	...	..	...
Gascoyne *a* ...			...	...	...	...	...	...	...	...	...	...	...	...
Peak Hill *b* ...			...	1	...	2	...	7	3	4	1	5	...	3
East Murchison...	4	15	...	...	1	5	...	9	3	10	4	10	4	8
Murchison ...			5	11	3	9	3	10	8	16	5	15	4	11
Yalgoo			...	...	4	1	...	5	...	...	...	...	...	...
Mount Margaret *c*			1	6	6	4	4	10	6	10	3	13	4	23
North Coolgardie			3	1	2	14	8	10	9	7	1	12	4	15
Broad Arrow ...			3	6	3	6	5	5	1	2	1	3	4	2
North-East Coolgardie	24	75	2	4	3	8	4	5	...	3	3	10	1	5
East Coolgardie...			15	26	14	29	14	44	11	45	17	43	14	90
Coolgardie ...			2	14	5	6	4	11	3	17	2	9	3	9
Yilgarn			...	6	2	3	1	4	...	3	2	...	1	1
Dundas			...	1	...	7	1	11	...	5	...	3	...	...
Donnybrook *d* ...	...	...	...	...	...	...	1	...	1	...	...	...	..	...
Phillips River *e* ...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Northampton ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Greenbushes ...	...	...	...	...	...	1	...	1	...	...	...	...	1	4
Collie	...	...	...	...	1	5	...	2	...	7	...	8	1	8
Total ...	30	91	31	77	45	101	45	134	45	130	39	132	43	179

a Proclaimed a goldfield 25th June, 1897. *b* Proclaimed a goldfield 19th March, 1897. *c* Proclaimed a goldfield 12th March, 1897.
d Proclaimed a goldfield 17th November, 1899. *e* Proclaimed a goldfield 14th September, 1903.

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Average Rates of Wages per shift on the different Goldfields, Mining Districts, and Coalfield of the State during 1903.

Goldfield or District.	Miners.					Engine-drivers.		Mechanics.					Surface Workers.	
	Rock-drill men.			Hammer-and-drill men.	Wet ground (extra).	Main shafts.	Other engines.	Drill sharpeners.	Fitters.	Carpenters.	Timbermen.	Turners.	Cyanide and filterpress.	General labourers.
	Shafts.	Rises.	Elsewhere.											
Goldfields	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Pilbara	...	...	...	13 4	1 8	15 0	15 0	13 4	16 8	16 8	15 0	...	13 4	13 4
Peak Hill	15 6	15 0	14 4	13 6	0 10	15 0	13 4	14 9	16 8	16 8	14 4	16 8	13 0	11 10
East Murchison	15 0	15 0	15 0	13 4	1 8	15 0	15 0	15 0	16 8	16 8	15 0	16 8	13 4	11 8
Murchison (Cue-Day Dawn)	14 6	14 0	13 4	12 6	1 8	15 0	13 4	13 9	15 0	15 0	13 4	15 0	12 0	10 10
Murchison (Nannine-Abbotts)	15 6	15 0	14 4	13 6	0 10	...	...	14 9	...	...	14 4	...	13 0	11 10
Yalgoo	13 4	14 2	13 4	11 8	1 8	13 4	13 4	12 4	15 0	13 4	13 4	...	10 0	10 0
Mount Margaret	15 0	14 6	14 0	12 4	1 8	15 9	14 6	13 4	16 8	16 8	14 0	16 8	12 4	11 0
North Coolgardie (Menzies)	15 2	14 8	14 2	12 6	1 8	16 0	14 6	14 2	15 0	15 0	14 2	...	12 6	10 10
Broad Arrow	14 4	13 10	13 4	11 8	1 8	...	13 4	12 6	...	15 0	13 4	...	11 8	10 0
North-East Coolgardie	14 4	13 10	13 4	11 8	1 8	15 0	13 4	13 4	15 0	15 0	13 4	15 0	11 8	10 0
East Coolgardie	14 4	13 10	13 4	11 8	...	15 0	13 4	13 4	15 0	15 0	13 4	15 0	11 8	10 0
Coolgardie	12 6	12 6	12 6	11 8	...	13 4	13 4	13 4	12 6	12 6	13 4	...	10 6	10 0
Yilgarn	...	...	...	10 0	...	12 0	12 0	12 0	13 0	12 0	11 0	...	10 0	10 0
Dundas	14 4	13 10	13 4	11 8	1 8	13 4	13 4	12 6	13 4	13 4	13 4	13 4	11 8	10 0
Phillips River	13 4	13 4	13 4	11 8	1 8	13 4	13 4	11 8	13 4	15 0	13 4	13 4	10 0	10 0
Coalfield—														
Collie	Hewers—4s. per ton piecework.													

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Government Batteries, 1903.

Goldfield.	Name and Address of Battery.	Particulars of Battery. Year when completed.	Particulars of Battery. Number of tamps.	Crushing and Cyaniding. Quartz crushed or tailings treated.	Crushing and Cyaniding. Gold yield.	Financial Results. Revenue and Expenditure. Revenue.	Financial Results. Revenue and Expenditure. Expenditure. Amount paid to owners of tailings.	Financial Results. Revenue and Expenditure. Expenditure. Total Expenditure.	Financial Results. Profit and Loss. Profit.	Financial Results. Profit and Loss. Loss.	Financial Results. Cost of crushing per ton.
			No.	tons.	ounces.	£	£	£	£	£	£
Broad Arrow	Paddington Puddler	...	...	191	47	42	...	130	...	88	·68
Dundas	Norseman	1898	10	3,911	4,965	2,645	...	3,120	...	475	·79
	(Cyanide)	...	...	1,325	743	2,224	941	1,895	329	...	·44
Coolgardie	Widgiemooltha	1900	10	568	261	484	...	711	...	226	1·25
North Coolgardie	Mulline	1900	20	7,933	9,428	5,210	...	3,667	1,543	...	·46
	(Cyanide)	...	...	7,285	1,923	4,059	3,985	2,995	1,064	...	·41
	Mount Ida	1899	10	1,246	2,374	920	...	970	...	50	·77
	(Cyanide	...	...	1,170	105	437	9	288	*149	...	·41
	Yundamindera	...	...	468	608	241	...	447	...	206	·94
	Niagara	1900	10	5,503	5,278	4,136	...	3,988	148	...	·72
	Mulwarrie	1901	10	4,617	4,944	3,229	...	3,164	65	...	·68
	(Cyanide)	...	...	4,040	877	2,395	1,330	1,847	548	...	·45
Mount Margaret ...	Leonora	1900	10	3,643	3,359	2,207	...	2,365	...	158	·65
	Burtville	...	10	1,072	2,826	729	...	706	22	...	·66
	Laverton	1902	10	1,989	1,918	1,398	...	1,373	25	...	·69
	(Cyanide)	...	...	3,750	407	1,553	197	967	586	...	·25
Murchison	Lennonville	1899	10	3,778	4,316	2,468	...	2,342	125	...	·62
	(Cyanide)	...	...	4,700	1,517	2,901	3,523	2,124	777	...	·45
	Meekatharra	1901	10	5,669	4,393	3,345	...	3,262	83	...	·57
	(Cyanide)	...	...	3,055	455	1,205	741	1,110	94	...	·36
	Boogardie	...	10	2,816	1,550	1,598	...	2,242	...	644	·79
	Paynesville	1900	5	...	...	20	...	7	13	...	...
	Tuckanarra	1899	10	903	955	164	...	88	77	...	...
East Murchison	Lake Darlôt	1901	10	3,427	9,736	2,611	...	3,097	...	486	·90
	(Cyanide)	...	...	4,044	555	2,040	346	1,196	845	...	·29
Peak Hill	Ravelstone	1900	10	1,011	973	56	...	8	47	...	...
Yilgarn ...	Southern Cross	...	10	393	384	216	...	319	...	103	·81
Greenbushes Tinfield	Greenbushes Tin-dressing Plant	1902	5	a	...	683	...	836	...	153	·41
Head Office Expenses								1,412	...	1,412	
Total, Batteries			190	49,231	58,905	40,216			6,540	4,001	
Total, Cyanide				32,490	6,582		11,072	46,670			
Grand Total			190	81,721	64,487	40,216	11,072		6,540	4,001	

a [illegible] tons treated for [illegible] of bullion [illegible] * [illegible] of [illegible] [illegible] of [illegible] [illegible] previous year.

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Machinery and Plant employed in Mining (other than gold) in Western Australia, 1902 and 1903.

Mineral.	Field or District.	Estimated Value of Plant.			
		Government Public Batteries.		Total Government and Private Machinery.	
		1902.	1903.	1902.	1903.
		£	£	£	£
Tin	Greenbushes Mining District	..	...	12,373	54,942
	Government Tin-dressing Plant	2,457	2,457		
	Marble Bar District	...	...	765	
	Total Tin-mining ...	2,457	2,457	13,138	54,942
Copper	Mt. Malcolm District	...	...	11,165	22,320
Coal ...	Collie River District	...	...	28,878	43,209
	Total Machinery ...	2,457	2,457	53,181	120,471

5.—GOLD MINING DIVIDENDS.

The first record of any dividend being declared from gold won in Western Australia dates back to 1890, in which year "Fraser's" Gold Mining Company at Southern Cross, Yilgarn, paid £1,250. The next mine yielding dividends was the "Central," on the same field, which, in 1891, paid £3,451. Dividends assumed larger proportions in 1893, when "Bayley's Reward," at Coolgardie, paid £30,600, whilst the same mine, in 1894, paid £96,000. Other mines then came into prominence, and "The Great Boulder Proprietary," in 1895, paid £48,000. From that year up to the present the other great companies fell into line, and the total payments for 1899 amounted to £2,066,015, of which amount "Lake View Consols" contributed £625,000. The dividends then for a time were not quite as phenomenal. Yet in 1900 they amounted to

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£1,396,089; in 1901, to £1,093,605; in 1902, to £1,424,272; in 1903, to £2,024,152; and in 1904, to £2,050,547. Their grand total from 1890 to the 31st of December, 1904, was £11,572,203.

The total for the year 1903, £2,024,152, was made up by the companies and in the manner following:—

Goldfield.	Name of Company.	Dividends, 1903.
		£
Murchison ...	Great Fingall Consolidated ...	200,000
	Island Eureka	1,000
Peak Hill	Peak Hill Goldfields	30,000
Mount Margaret	Lancefield	3,960
	Sons of Gwalia	79,500
	Westralia Mount Morgans	60,000
	Ida H.	28,606
North Coolgardie	Queensland Menzies	19,800
	Menzies Alpha	1,000
	Cosmopolitan Proprietary Co. ...	60,000
N.E. Coolgardie ...	White Feather Main Reef	8,000
East Coolgardie	Associated	49,536
	Brown Hill Extended	45,000
	Great Boulder Perseverance ...	350,000
	Great Boulder Proprietary	262,500
	Oroya Brown Hill	191,250
	Ivanhoe	180,000
	Golden Horseshoe	270,000
	Associated Northern Blocks ...	87,500
	Kalgurli	60,000
Coolgardie	Burbanks Birthday Gif ...	4,500
Dundas	Princess Royal	32,000
	Total	£2,024,152

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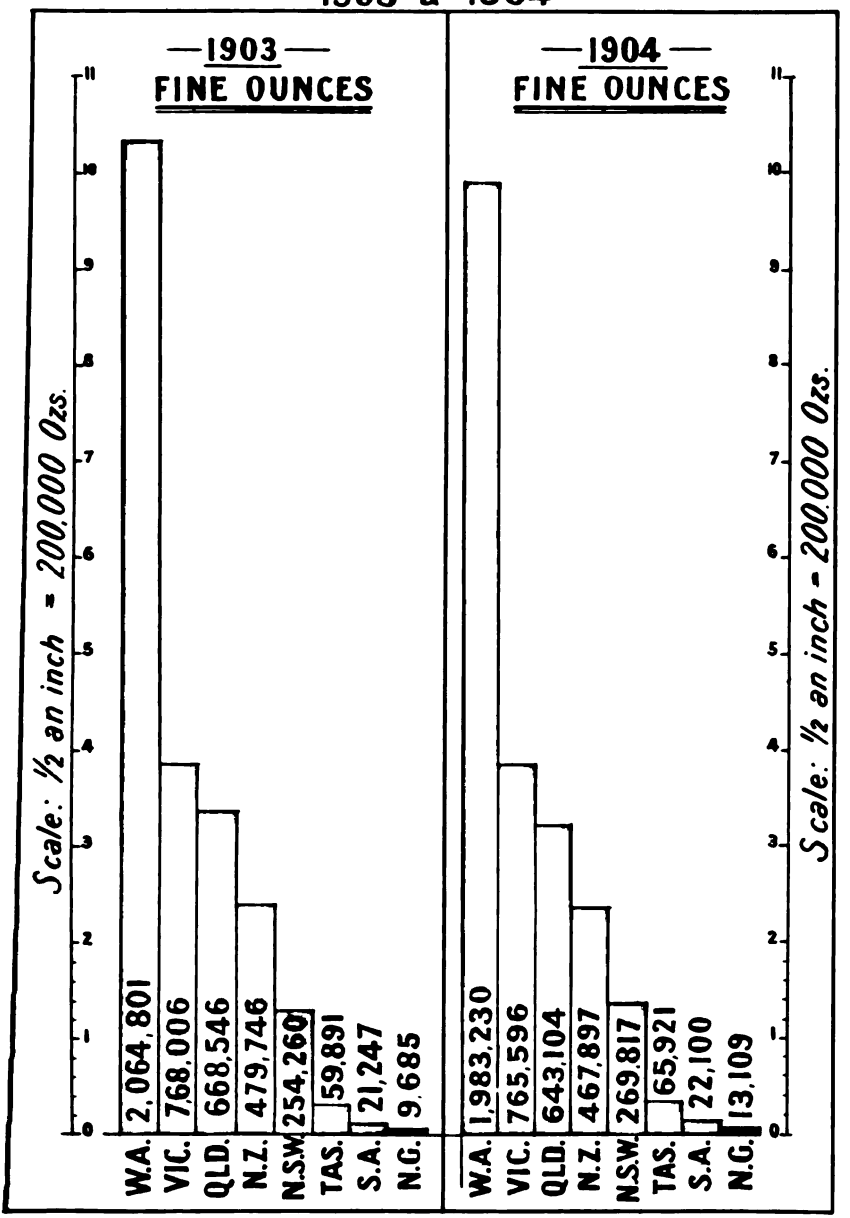
GOLD YIELD OF AUSTRALASIA.
1903 & 1904



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The total for the year 1904, £2,050,547, was made up by the companies and in the manner shown hereunder:—

Goldfield.	Name of Company.	Dividends, 1904. Per share. s.	d.	Amount. £
Murchison	Great Fingall Consolidated ...	27	0	337,500
Mount Margaret	Sons of Gwalia	6	0	97,500
	Westralia Mount Morgans ...	1	3	30,000
	Ida H.	1	3	13,500
North Coolgardie	Cosmopolitan Proprietary Co.	1	0	20,000
	Golden Pole	1	6	15,000
North-East Coolgardie	Queen Margaret	1	0	4,752
	White Feather Main Reef ...	0	6	4,000
East Coolgardie	Great Boulder Proprietary ...	3	3	284,375
	Oroya Brown Hill	12	6	281,250
	Golden Horseshoe	18	0	270,000
	Great Boulder Perseverance	3	6	245,000
	Ivanhoe	22	6	225,000
	Associated	4	6	111,457
	Kalgurli	10	0	60,000
	Lake View Consols	1	6	26,250
	Hainault	1	0	6,038
	Brown Hill Extended ...	1	0	5,000
	Golden Ridge	1	3	1,925
Dundas	Princess Royal	3	0	12,000
	Total ... ... £			2,050,547

The following tabular statement of the dividends annually paid by the Western Australian Mining Companies illustrates the rapid progress made since the year 1890:—

Year.	Dividends. £	Year.	Dividends. £
1890	1,250	1898	605,949
1891	5,326	1899	2,066,015
1892	1,875	1900	1,396,089
1893	34,350	1901	1,093,605
1894	110,642	1902	1,424,272
1895	82,183	1903	2,024,152
1896	168,216	1904	2,050,547
1897	507,732		
		Total ...	£11,572,203

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6.—WESTERN AUSTRALIA AS A GOLD-PRODUCING STATE.

The position which Western Australia occupies in the world as a gold-producing State may be seen from the following decennial table of the gold yield of Australasia, the United States of America, and the Transvaal, these being the principal gold-producing countries of the present day. It will be seen that, owing to the rapid growth of the gold-mining industry in this State, Australasia is now in the proud position of furnishing the largest annual supply of gold to the world's market. The amounts have in every instance been reduced to fine gold.

Year.	Gold Production of				
	Western Australia.	Other States and Colonies of Australasia.	Total Australasia.	United States of America.	Transvaal.
	ozs.	ozs.	ozs.	ozs.	ozs.
1895	207,111	1,867,532	2,074,643	2,254,760	2,017,443
1896	251,618	1,837,699	2,089,317	2,568,132	2,025,510
1897	603,847	1,959,425	2,563,272	2,774,935	2,724,518
1898	939,490	2,067,614	3,007,104	3,118,398	3,823,357
1899	1,470,605	2,317,354	3,787,959	3,437,210	3,637,713
1900	1,414,311	2,128,826	3,543,137	3,829,897	348,761
1901	1,703,416	2,015,410	3,718,826	3,805,500	231,076
1902	1,871,038	2,085,163	3,956,201	3,870,000	1,718,921
1903	2,064,801	2,261,381	4,326,182	3,560,000	2,872,897
1904	1,983,230	2,247,544	4,230,774	4,090,532	3,773,517

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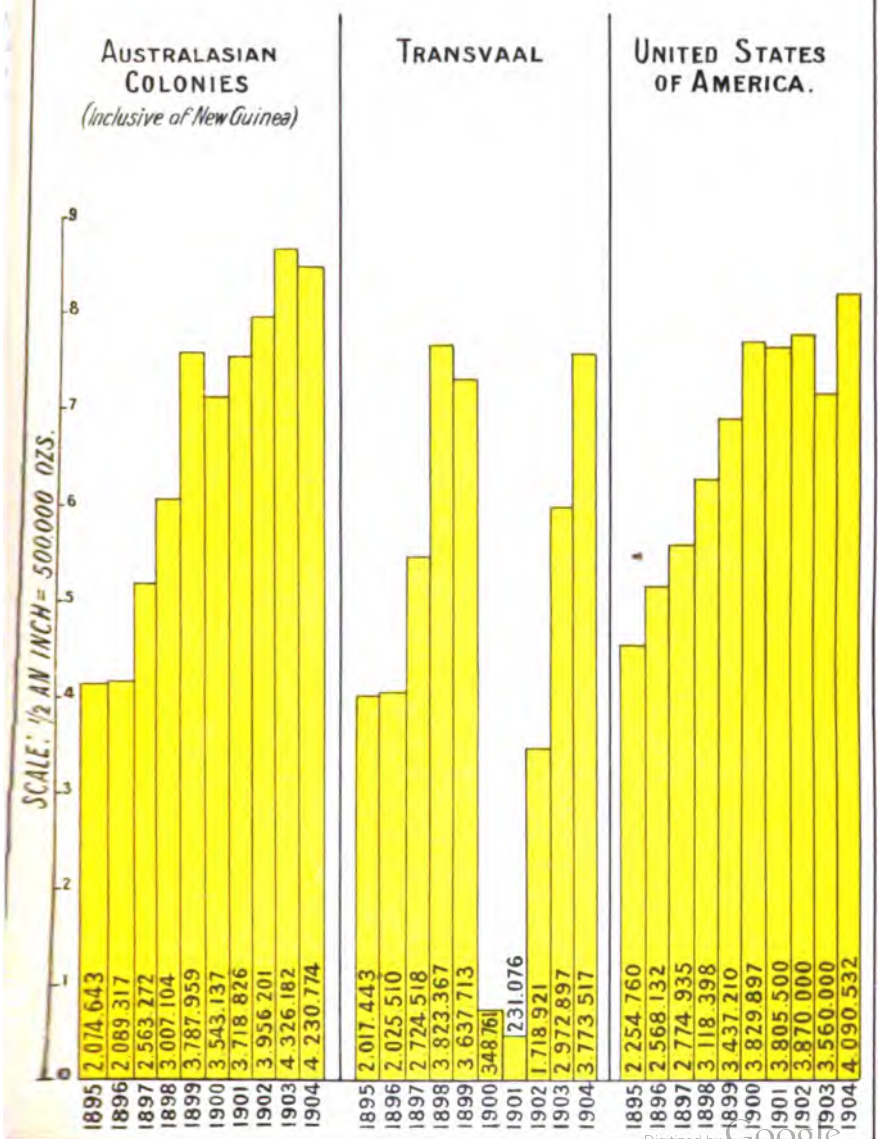
GOLD YIELD OF THE PRINCIPAL GOLD PRODUCING COUNTRIES OF THE WORLD.



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PART X.—INDUSTRIES.

(Including all those industries not yet specially dealt with.)

1.—THE TIMBER TRADE.

From the statistical figures relating to the local timber production, as shown in the tables below, enough can be learned to gauge the importance of this industry; the steady rate at which it is being developed, and its value as a national asset; and it is gratifying to reflect that, while there is a continued local demand, at the same time the foreign trade shows an almost constant increase from year to year. In 1898 the exports of locally grown timber were valued at £326,195. In 1899 the figures were £553,198. There was a temporary falling off in 1900, the figures being £458,461; but in 1901 they rose to £572,354. Further fluctuations in the following years resulted in an ultimate increase of the amount, the figures for 1902 and 1903 being respectively £500,533 and £620,012, whilst during 1904 the exports of local timber to places beyond the Commonwealth alone amounted to £584,422. The demand for Western Australian hardwoods for railway sleepers, street paving blocks, and piles for wharves and piers continues; the exports to the United Kingdom in 1900 were 46,866 loads; in 1901 they amounted to 62,726 loads, and in 1902 to 48,997 loads; in 1903, when the quantities were for the first time stated in a different manner, 22,864,493 superficial feet of locally grown timber were exported to the United Kingdom, and in 1904 the amount was 28,776,231 superficial feet.

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Western Australian Forest Saw-mills cutting Native Timber, 1903.

Electoral District.	Forest Sawmills*	Persons Employed.			Horse-power of Engines.				Average time in operation during the Year.	Horses and Bullocks Employed.		Length of Railway or Tramway belonging to the Saw Mills.	Quantity of Timber sawn during the Year.	Approximate Value of		Amount of Salaries and Wages paid during the Year.
		Working Proprietors.	Employees.	Total.	Steam.	Gas.	Oil.	Electric Motor.		Horses.	Bullocks.			Land and Buildings.	Plant and Machinery.	
	No.	No.	No.	No.	Noml.	Brake.	Brake.	E.H.P.	Months.	No.	No.	Miles.	Super Ft.	£	£	£
Cockburn Sound	2	2	35	37	10	...	18	...	10·38	18	...	...	1096000	450	3700	3150
Murray ...	4	2	652	654	238	...	...	...	11·79	226	74	77	31292400	25490	142750	89017
Nelson ...	6	8	51	59	48½	...	...	...	9·56	20	58	...	1458000	805	3145	4165
South-West Mining ...	2	...	223	223	243	...	...	...	9·04	75	60	12	8729928	7542	31150	21737
Swan	5	4	217	221	140	...	...	...	11·37	81	14	16	9868400	7750	27980	28604
Wellington ...	7	1	1085	1086	1465	...	...	...	11·89	570	76	99	57121940	40530	148800	154681
Bunbury ...	1															
Plantagenet ...	1 †	9	484	493	345	...	8	...	11·94	210	195	91	17663165	35015	226614	69920
Sussex ...	1															
Total ...	29	26	2747	2773	2489½	...	26	...	11·53	1200	477	295	126729833	117582	582139	371274

* All establishments used machinery worked by steam or oil. † These particulars have been combined in order to conceal the contents of individual schedules, in compliance with the provisions of Section 18 of "The Industrial Statistics Act, 1897."

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The above table gives particulars of the working and the output of the Western Australian forest sawmills for the year 1903, the figures being those relative to the various timber-producing districts. The following statement contains the totals for the whole State for each of the seven years 1897 to 1903.

Forest Saw-mills cutting Native Timber, 1897 to 1903.

Year.	Forest Saw Mills*	Persons employed.	Horse-power of Engines.				Average time in operation during the Year.	Horses and Bullocks Employed.		Length of Railway or Tramway belonging to the Saw Mills.	Quantity of Timber sawn during the Year.	Approximate Value of		Amount of Salaries and Wages paid during the Year.
			Steam.	Gas.	Oil.	Electric Motor.		Horses.	Bullocks.			Land and Buildings.	Plant and Machinery.	
	No.	No.	Noml.	Brake.	Brake.	E.H.P.	Months.	No.	No.	Miles.	Super. Ft.	£	£	£
1897	35	2,837	3,854	...	...	...	10·23	†954	†445	†152	†85,052,976	†229,135 *a*	†324,600	*b*
1898	35	2,961	3,969	...	11	...	8·24	1,410	905	273	103,042,991	†397,220 *a*	†473,758	*b*
1899	25	2,799	3,616	...	11	...	11·56	1,895	814	275	118,051,861	†90,685	†462,723	384,504
1900	22	2,931	3,481	...	11	...	11·52	1,190	545	291	112,693,000	†122,863	†497,500	358,444
1901	23	3,054	2,870	...	7	...	11·69	1,305	543	318	122,413,865	‡107,300	‡570,375	386,873
1902	27	2,978	3,211½	...	11	...	11·86	1,218	694	323	124,005,005	132,280	663,259	404,573
1903	29	2,773	2,489½	...	26	...	11·53	1,200	477	295	126,729,833	117,582	582,139	371,274

* All establishments used machinery worked by steam or oil. † These returns are incomplete, the figures for one mill not being available. ‡ These returns are incomplete, the figures for two mills not being available. *a* These figures are excessive, owing apparently to value of Timber Leases having been included. *b* Information not available.

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It will be seen that, although the number of mills decreased during the seven years, the aggregate output of timber steadily increased.

During the year 1903, the aggregate number of employees in the timber mills was 2,747; the average time during which the mills were in operation was 11·53 months; the amount of salaries and wages paid was £371,274.

The quantity of timber cut in Western Australia during 1904 was as follows:—

	sup. ft. cut.
Jarrah	137,161,599
Karri	6,249,517
Tuart	40,425
Wandoo	16,000
Other	127,412
Total	143,594,953

The export of local timber, consisting, as it does, mainly of jarrah and karri, especially the former, is, as will be seen from a comparative statement for the years 1902, 1903, and 1904, given hereunder, not confined to the United Kingdom and Australasia, but extends over the most widely scattered parts of the world:—

Countries to which exported.	Value of Timber exported.		
	In 1902.	In 1903.	In 1904.
	£	£	£
United Kingdom	195,977	152,431	191,272
Victoria	6,841	8,469	26,609
South Australia	60,920	16,067	42,735
New South Wales	702	92	1,183
New Zealand	2,724	28,206	21,227
Singapore	5,301	1,600	6,564
Ceylon	15,860	9,387	17,808
India	21,922	64,477	151,773
Natal	62,781	39,474	31,277
Cape Colony	57,776	130,773	61,149
Mauritius	6,400	2,608	4,504
Hong Kong	704	1	3,878
Canada	34	...	...
Lorenzo Marquez	32,215	148,060	50,353
Philippine Islands	1,950	10,502	14,165
China	14,306	210	...
Argentine Republic	12,122	...	4,015
Italy	4	...	...
Spain	1,994	...	..
Belgium	...	960	960
Uruguay	...	6,388	..
Egypt	...	...	20,778
Holland	...	...	4,693
United States	...	...	6
Total	500,533	619,705	654,949

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Jarrah Sawmill.

Jarrah (*Eucalyptus marginata*) **Forest.**

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From the first settlement of Western Australia as a Colony to the end of the year 1903, native timber to the value of £4,831,251 was exported, a very large proportion of which went to the United Kingdom.

The sandalwood trade was for many years one of the most important industries of Western Australia. In 1845 four tons, valued at £40, were exported; since that period, up to the end of 1903, the total shipments—principally to Singapore and China—were 212,280 tons, valued at £1,848,634. The figures for 1903 were 4,406 tons, valued at £37,913.

When it is considered that, according to the estimate of the late Conservator of Forests (Mr. Ednie Brown), the area of jarrah forest in Western Australia is about 8,000,000 acres, and of karri forest about 1,200,000 acres, and that the records of the Lands Department, on 31st December, 1903, only showed an acreage of 904,260 acres of forest land under timber leases and licenses, it will be realised what scope for expansion there still is in the local timber industry. Among the timber companies at present carrying on business in Western Australia, "Millars' Karri and Jarrah Company (1902), Limited," occupies perhaps the most prominent position, it having effected, under a contract of purchase and amalgamation, a combination of eight originally separate companies. There are still, however, a certain number of independent companies outside this combine.

2.—FISHERIES.

The Chief Inspector of Fisheries, in reporting on the progress of the industry entrusted to his supervision, has, for several years in succession, expressed his regret at being unable to arrive at a reliable estimate of the quantity of fish offered for sale during each year throughout that portion of the State coming within the operation of the Fishery Act, owing, as he has pointed out, to the want of the necessary powers to compel the inspection of all fish brought into any municipality for market purposes. From the returns for the year 1904 supplied by the Railway Department, the quantity was approximated as being about 1,700 tons, the estimate for the previous year being 1,500 tons. The value of the industry for 1904 was estimated at £40,000. During the year 251 fishing

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boat and 605 fishermen's licenses had been issued, the figures showing a slight increase over the previous year. It is worthy of note that foreign nationalities are strongly represented in the returns of licenses issued to fishermen.

For some years there has been a general complaint throughout the State that the supply of fish has been insufficient, and far too high in price to allow it to become a staple food within the reach of all classes. The causes of this are easy to explain. The coast line from Geraldton to Albany, a distance of nearly 600 miles, is only tapped in a few isolated places by railway communication, some of these places being over 200 miles apart; consequently the fishing fleet have to confine their operations within reach of these facilities. The distances from the populated centres to, notably, Geraldton and Albany are so great, and the charges and freights so high, that unless fish food from these distant fishing grounds command a high price, there is absolutely no margin of profit to the producer. In the past, too, the absence of the necessary power to bring all fish into a common market and so regulate its sale has kept the prices up. Cases have consequently occurred when fishermen, not getting their own prices, took their catches out to sea and dumped them overboard.

The remedy is within reach, but it requires capital to effect it; the first consideration being the provision of quick transit from the distant fishing grounds by means of steamers fitted up with cool-storage chambers. The Government, by encouraging deep-sea trawling, is doing valuable work in building up an important industry. Successful trawling with quick transit by steamer from the fishing fleets would mean the establishment of a regular and plentiful supply of fish for all classes at a reasonable figure. The use under present conditions also of a solution of boric acid for washing the fish, and other of the most modern means of guarding against putrefaction, deserve especial consideration in connection with the enterprise.

The industry is undoubtedly feeling the benefit of the continued closure of portions of our inland waters and rivers against net fishing. It is a very difficult matter to adopt and carry out the necessary measures for the proper protection of fish and fishing grounds without causing a certain amount of dissatisfaction amongst the fishermen; but while the licensed men should be assisted and protected as far as practicable, it is absolutely necessary for the preservation of anadromous fish that portions of our inland waters and rivers should be temporarily reserved for breeding and nursery grounds.

It seems only reasonable to expect that the constant fishing in, and consequent disturbance of particular waters, especially if they happen to be of a confined or restricted nature, would drive the fish they contain to seek, if only temporarily, other more secluded spots, where they would not be interfered with.

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The returns received from the Collector of Customs show a good deal of fluctuation during the past three years in the importation of dried, salted, pickled, and preserved fish into this State. During the year 1902 between 800 and 900 tons, with a value of £43,672, were imported; while for the year 1903 the importation of fish food amounted only to between 600 and 700 tons, with a value of £35,630, and for the year 1904 the amount suddenly increased to 831 tons, with a value of £45,345.

These figures should prove conclusively that there is ample scope for the investment of capital in the establishment of well-appointed canneries, as well as a regular fresh fish trade with our populated centres, and if capitalists would turn their attention towards the Northern waters of this State, investment in all branches of the fishing industry would certainly present great possibilities of profit.

The following particulars, also taken from the Chief Inspector's report for 1904, are of especial interest:—

The canning factories at Mandurah commenced operations again during the latter part of the year. There are three small factories at present working, the total quantity put up in tins during the year amounting to 17 tons. Although the canning factories have in the near past practically left the Perth herring untouched, it is pleasing to note from inspectors' reports that the last experiments made in the kippering and canning of these resulted in the discovery that a very ready sale exists for them. The fact that these fish are very plentiful in our Southern waters gives promise of bigger figures in the coming years. Although the figures quoted are not large, still they furnish a very good indication of what could be done if factories, properly equipped with the latest improvements, were opened in some of our Northern ports, where the waters are teeming with fish admirably adapted for canning purposes.

The capture of crayfish by the trawl, especially in the waters adjoining the Abrolhos Islands, proves the existence of this species of crustacea in immense quantities.

In conjunction with this, the recent discovery of the existence of particularly large prawns in the vicinity of Bernier Island over an immense area of ground should surely encourage private enterprise to establish canning works in this vicinity. The returns of the Collector of Customs go to prove that there is ample scope for the investment of capital in this direction, with great possibilities of profit.

Furthermore, it may be mentioned that the experience lately gained at Industrial Exhibitions held in various parts of the world has distinctly shown that the Australian crayfish, when canned, if they do not surpass the lobsters of the Northern Hemisphere, at least compare very favourably with them in excellence and delicacy of flavour.

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During the latter part of the year an application was received for the "Exclusive right to fish for, gather, and collect, for a term of twenty-one years, all cartilaginous fishes and cetaceans in the coastal waters between Bernier Island on the North and the extreme end of Shark Bay on the South," for the purpose of extracting and refining oil from these fishes and mammals, and then converting their flesh into fertilisers.

Industries of this nature have assumed very large proportions in the United States of America.

Although the area applied for may seem large, a glance at the map will show that it is in reality only a very small portion of our coastal waters. The fact that the waters of Shark Bay, which are included in the area applied for, are recognised as one of the breeding and nursery grounds of all cartilaginous fishes, which abound there in numberless quantities, gives a fair promise, if the concession asked for is granted, of the successful inauguration of a new industry which should afford employment to a large number. From an agricultural standpoint, seeing that nearly all aquatic products are known to possess rich fertilising properties, the industry should also command great interest in its success.

Viewed from a fishery standpoint, the application is also worthy of consideration, as the destruction or lessening of the numbers of the cartilaginous fishes, which are the natural enemies of the smaller edible fish, must necessarily mean an increase in our fish supply. It is to be hoped, therefore, that during the coming session an amended Fisheries Act will be introduced giving power to grant, if considered desirable, such applications as the one received, as under present legislation no power is given to deal with these matters.

For some time past public agitations have been organised and petitions presented, having for their object the closing of portions of the ocean waters against net fishing. On this subject the Chief Inspector points out that, although the habits of our food fishes are not so well-known as those of older countries, yet there is sufficient evidence to prove that the majority of our food fishes lay a pelagic egg, consequently it cannot very well be contended that the closure of portions of our ocean waters would materially effect an increase in our fish supply, for it will be obvious that the pelagic egg and young are carried everywhere by currents. All authorities agree that food fishes are not confined to the shallow waters in which they are usually captured, but that they likewise extend into waters too deep for netting operations, which consequently form the reserves in which the various species are reproduced.

The Scottish Fishery Board closed all their waters within the three mile limit (2,000 square miles) against netting operations for ten years. Extensive investigations were then carried on to determine if the fish supply had increased during the period, and to quote the words of W. C. McIntosh, M.D., LL.D., F.R.S., etc., Professor of

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Natural History, Director of the Museum and of the Gatty Marine Laboratory, when reviewing the result of the ten years' closure and the report of the board, and especially relative to the closure of Moray Frith, St. Andrew's Bay, and the Frith of Clyde:—"The result of the closure of the great area (viz., 2,000 square miles) gives no other result than that taught by the three foregoing experiments (namely, the waters mentioned above). No accumulation of food-fishes, no general increase in their size, and no alteration of the ways of Nature have been effected by the interference of man in this respect. That the closure of the three mile-limit has failed to increase the number or the size of the food-fishes, is ineffectual in regard to the supply of the public, and is a continual source of friction and expense, while falling short of the expectations of those who clamoured for it." The following is an extract from the twentieth Annual Report of the Fishery Board of Scotland for the year 1901:—"The renewed investigations concerning the change in abundance of the various species within the close water confirm the conclusion reached in 1896 on this subject. It was then stated 'it appears to be fairly well proved that there has been a diminution of the more important flat fishes in closed waters instead of an increase as was anticipated. . . There is no satisfactory evidence that the closure has increased the number of round fishes generally within the closed waters.'"

Guided by the opinions of the eminent authorities quoted above, and by local experience, the Chief Inspector found it impossible to do other than recommend the refusal of all petitions for the closure of ocean waters.

During the year Leschenault Estuary was entirely closed against netting operations.

The industry is undoubtedly reaping the benefit of the continued closure of our inland waters and rivers. The steady yearly increase in our supply, especially from Mandurah, has proved the wisdom of our regulations over that locality. Owing to the very large extent of water at Mandurah under the supervision of the Inspector, he has, unfortunately, been unable to prevent many cases of illegal fishing, and until he is supplied with adequate means of locomotion, so that he may move quickly from place to place, independently of wind or weather, it will be little less than a matter of impossibility to strictly enforce regulations.

A matter of more than passing interest is the discovery in our coastal waters of commercial sponges. Samples have been sent through Mr. Woodward, Director of the Perth Museum, to Mr. T. Whitelegge, Zoologist to the Sydney Museum, for classification. Out of the eight samples forwarded, four varieties have been classed as being of economic value, *viz.*, *Hippospongia Equina Var elastica Ledenfeld*; *Euspongia irregularis var: silicata*; *Euspongia officianalis var: dura Ledenfeld*; *Hippospongia canaliculata, Ledenfeld.* Most of the above are identical with the bath sponges sold in Perth.

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Quite recently, splendid samples have been obtained from Esperance in the South, and Shark Bay in the North, a distance of 1,000 miles, showing they have a wide distribution, and there is every probability of their being found between these places and further North. It now only remains to prove if they exist in payable quantities, and another valuable industry will be added to the State.

The oyster beds at present under lease in Taylor's Inlet, near Albany, are steadily improving. During the year the lessee imported Queensland oysters and laid them down on the beds, with the object of discovering if our waters are suitable to their growth. It is too early yet to speak with any degree of certainty, but the results so far seem to be very satisfactory. The oysters indigenous to the inlet are the mud oyster, closely allied to the English native (*ostrea edulis*), the slight difference in its shell having decided conchologists to recognise it by another scientific name (*ostrea angasi*). The efforts now being made in the direction of cultivating the Queensland oyster, which finds a much more ready sale than the mud oyster, are the first attempted in this State, and the experiment will be watched with interest.

From the Customs returns it will be seen that 2,818 cwt. of oysters were imported during the year, most of the quantity having come from Queensland.

Oyster cultivation in our Northern waters is at present engaging some attention, application having been received for a lease at Shark Bay for this purpose. There appears to be no reason why success should not be met with in that and other localities, as has been met with in Queensland and New South Wales waters and in other parts of the world.

Pearl Shell Fisheries.

In 1897 an Act was passed empowering the Government to extend the provisions of "The Shark Bay Pearl Shell Fisheries Act, 1896," to other waters.

The Inspector of Fisheries, in his report of 1898, stated: "The pearling banks are, beyond doubt, recovering themselves rapidly; and in the course of a few years some of the more favourably situated should be equal to what they were 15 years ago. Cultivation of the pearl oyster has not been carried on to any great extent. The results of the experiments prove, however, that the shell of the transplanted oyster loses its bright lustre, but the progeny of the foreign bivalve appears to have become acclimatised, and the shell has all the bright lustre of the indigenous pearl oyster."

A fair estimate of the importance of the pearling industry of the State may be obtained from the following tabular statement for 1903, from which it will at once be seen that the greater portion of the pearling fleet is now almost permanently engaged in the vicinity of Broome.

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Statistics of Pearling Industry for 1903.

District.	Vessels.		Labour.									Quantity of Pearl Shell.				Value of Pearls.	Value of Pearl Shells.
					Asiatic.												
	No.	Total Tonnage.	White.	Aboriginal.	Chinese.	Japanese.	Malay.	Manilla.	Others.	Total Asiatic.	Total Labour.						
			No.	No.	No.	No.	No.	No.	No.	No.	No.	tons.	cwt.	q.	lbs.	£	£
Broome—																	
Apparatus Vessels *a* ...	292	4,609	162	31	14	620	950	257	62	1,903	2,096	790	11	2	4	37,974	116,049
Beach-combing ...	1	9	1	15	...	...	...	...	...	...	16	2	11	...	...	400	500
Onslow—																	
Apparatus Vessels ...	22	366	9	...	1	45	69	18	9	142	151	77	10	3	21	2,538	11,406
Shark Bay—																	
Hand Dredging ...	22	99	21	13	...	...	12	8	...	20	54	125	...	...	...	1,736	634
Total *b* ...	337	5,083	193	59	15	665	1,031	283	71	2,065	2,317	995	13	1	25	42,648	128,589

a Incomplete, the returns for one fleet of one schooner and six luggers not supplied. *b* Incomplete.

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Although Cossack is not, of course, as important a centre of the pearling industry as Broome, it is very much to be regretted that no returns for 1903 were supplied from that port. The returns from the other places for that year do not show that any bêche-de-mer was obtained.

The progress made in the industry in the course of eight years can be gauged from the comparative table for the years 1896 to 1903, in so far as complete figures for past years are available:—

Year.	Vessels.		Labour.									Quantity of Pearl Shell.		Value of Pearls.	Value of Pearl Shells.	Value of Bêche-de-Mer.
					Asiatic.											
	No.	Total tonnage.	White.	Aboriginal.	Chinese.	Japanese.	Malay.	Manilla.	Others.	Total Asiatic.	Total Labour.					
			No.	No.	No.	No.	No.	No.	No.	No.	No.	T.	cwt.	£	£	£
1896	115	1,926	43	83	*	*	*	*	*	617	743	381	10	7,998	*	*
1897	151	1,851	61	95	2	144	273	150	39	608	764	430	5	8,688	46,882	1,825
1898	168	2,212	65	91	5	182	328	239	55	809	965	639	16	11,202	69,438	1,300
1899	179	2,707	80	94	14	168	481	256	72	991	1,165	720	17	15,529	80,479	488
1900	200	3,042	99	119	11	236	496	271	63	1,077	1,295	749	14	14,376	77,879	32
1901	232	3,380	132	65	11	280	699	307	61	1,358	1,555	831	10	30,637	95,568	120
1902	267	3,753	154	75	12	362	787	294	72	1,527	1,756	969	16	45,080	142,615	162
1903a	337	5,083	193	59	15	665	1,031	283	71	2,065	2,317	995	13	42,648	128,580	...

* Information not available. a Incomplete.

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North-West Pearling Industry.

During the year 1904 1,092 tons of shell, with a declared value of £123,939, were exported from this State. These figures show an increase of 191 tons over 1903, but, owing to the lower value of shell as compared with the phenomenal prices realised during the previous year, they also show a decrease in value of £49,926. From the returns of the licensing officers at Broome, Cossack, and Onslow, it appears that 461 pearling boat licenses were issued under "The Pearl Shell Fishery Act, 1886." The total number of male adults employed was, approximately, 2,882, of whom 2,577 were Asiatic or African aliens, 245 Europeans, and 60 Aborigines.

In a former report the Chief Inspector of Fisheries drew attention to the very small annual revenue derived directly from this industry. The fee of £1 per boat engaged in the industry is still in force, and a revenue of £490 was collected in 1904, while the export value of shells obtained was £123,939. These figures are exclusive of the value of pearls, which may be approximately put down at £50,000. It will thus be seen that the industry represents a very considerable value, and one from which might fairly be expected a larger direct revenue than is at present received.

Prior to the year 1890, under "The Pearl Shell Fishery Act, 1886," there was an export duty of £4 per ton on shell—which was reduced to £2 by "The Pearl Shell Duty Reduction Act, 1889," and repealed in 1895. From 1890 to 1895, the revenue derived, exclusive of pearling licenses, was, approximately, £6,644. The revenue since received, to the end of 1904, under the Pearl Shell Fisheries Act and the Pearl Dealers Licensing Act, amounted to £2,027.

When a comparison is made between the export value of £173,939 and the direct revenue of £490 received during the year, it must be acknowledged that the pearlers have been most leniently treated with regard to taxation since the export duty on shell was finally repealed.

From returns supplied by the licensing officers, the value of the plant, boats, and buildings engaged entirely in the industry is estimated at, approximately, £184,000; but as these figures are quoted at an average value of £200 per boat less than the previous year (which decrease is explained by the licensing officer at Broome as owing to speculation in the boats and to the big fall in the price of the shell), they show a substantial decrease on the figures given for the previous year. It may be said, however, that these figures do not represent the actual amount of the capital invested in the industry, which may be safely estimated at a much larger figure.

Shark Bay Pearling Industry.

The Chief Inspector's report contains the following particulars of the Shark Bay Pearling Fishery:—

The export of pearl shell from Shark Bay during the year, according to returns supplied by the Collector of Customs,

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amounted to 71 tons 16cwt., with a declared value of £566. Taking the value of pearls obtained at an approximate estimate of £2,000, the industry represents a total value of £2,566 for the year.

Although these figures show a slight increase on those of the previous year, this industry is in a languishing state, owing to the very low price of the London market for Shark Bay shell. At the present moment there are hundreds of tons of shell stacked on the beach waiting for a better market, and if it were not for the good prices realised for pearls during the early part of the year, which, however, have since fallen considerably, the industry would be at a standstill. The present state of affairs has to a very great extent been caused by the neglect to grade and classify shells before shipment in the past, and, judging from reports received from London, buyers are fighting shy of Shark Bay parcels. However, with the information the pearlers are now in possession of through the Agent General on this question, there are healthy signs that efforts will be made to build up a market which will again bring the industry to a more flourishing condition.

The experiments carried out some years ago of transplanting the large mother-of-pearl shell from the North-West to Shark Bay waters, with the object of ascertaining if the conditions were suitable to their growth, have been a marked success. The young shell are apparently healthy and thriving well some considerable distance from where the parent shells were laid down, and the Nor'-West shell (*Meleagrina Margaritifera*) appears to have firmly established itself in the waters of Shark Bay in the vicinity of where they were originally planted.

3.—FACTORIES AND INDUSTRIAL ESTABLISHMENTS.*

In view of the fact that the principal expansion of Western Australia is of very recent date, it is but natural to expect that those industries which do not directly deal with her most important resources, are unlikely to have as yet received the same attention as would naturally be the case in older settled communities. Nevertheless, it would be misleading to speak of her manufactories as being wholly undeveloped or insignificant. Indeed, under the circumstances, the amount of industrial activity already displayed, outside the avenues of the direct exploitation of the soil, bears most favourable testimony to local enterprise. As to this, a glance at the output of the principal manufacturing establishments of the State, during the years 1897 to 1903†, should convince the most sceptical.

* For full particulars relative to the Timber Industry, *see* special chapter on that subject. † Figures relative to 1904 are given on pages 1197-1199.

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Factories, etc.	Articles, etc., Produced or treated.		1897.	1898.	1899.	1900.	1901.	1902.	1903.
Tanneries ...	Hides tanned ...	number	13,020	11,620	10,200	11,195	12,852	10,730	16,260
	Skins tanned ...	number	*	7,000	6,632	9,810	11,450	6,100	38,800
Soap and Candle Works	Soap made ...	cwt.	19,175	20,381	21,460	24,520	20,315	22,782	27,232
	Candles made ...	lbs.	765,135	1,169,475	1,881,600	1,828,499	1,737,292	1,866,725	1,789,106
Brickworks	Bricks made ...	number	36,564,400	26,810,900	18,564,710	25,234,084	30,160,162	37,721,897	45,576,179
Lime Works	Lime burned ...	bags	*	*	*	*	*	160,522	219,879
Flour Mills ...	Wheat ground	bushels	365,942	438,265	490,035	626,042	493,263	576,781	685,652
	Flour made ...	tons	7,314	8,460	10,042	12,539	10,278	11,840	13,711
Aerated Water and Cordial Factories	Aerated Waters made	dozens	1,061,178	890,135	1,085,922	1,201,029	1,084,852	1,229,786	1,211,701
	Cordials made	dozens	19,499	15,892	16,163	29,875	17,307	16,027	14,136
Breweries	Beer and Stout made	gallons	2,817,982	3,278,008	3,373,642	4,015,490	4,225,037	4,780,058	4,943,450
Tobacco and Cigar Factories	Tobacco made	lbs.	83,600	67,477	78,155	100,448	115,855	94,393	61,404
	Cigars made ...	number	840,400	583,275	694,650	1,045,900	1,140,611	1,054,975	902,700
		lbs.	7,826	6,985	8,712	13,063	14,263	13,832	11,672
	Cigarettes made	number	2,909,000	585,000	1,056,000	1,588,000	4,206,000	2,804,000	215,000
		lbs.	6,545	1,316	2,640	4,367	10,500	6,758	479
Boot Factories ...	Boots and Shoes made	pairs	171,307	207,957	217,416	249,786	264,768	212,768	221,775
Gas Works	Gas supplied ...	cubic feet	52,810,290	56,988,680	48,806,400	59,977,130	52,203,900	52,423,870	54,434,300

* No information available.

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In addition to the products for the year 1903, shown in the table, a total of 437,846 bushels of bran and 240,009 bushels of pollard were made in the flour mills; 6,752 pairs of boot and shoe uppers for other than factory use in the boot factories; articles of pottery, including pipes and tiles, to the value of £1,050 in the brick works; and 2,391 tons of coke in the gas works.

The principal increases are observable in the productiveness of tanneries, brick works, lime works, flour mills, breweries, and electric light works.

In dealing with the figures relating to Western Australian industries, it must be borne in mind that those collected by the Statistical Department only refer to industrial establishments coming under the definition given in the Industrial Statistics Act, each being a "factory, workshop, or mill, where either four persons "or more have been employed at any one time during the year, or "where an engine driven by steam, gas, oil, or electricity has been "used, whatever be the number of persons employed." The returns furnished under the provisions of this Act showed a total number of industrial establishments in the year 1903 of 693, as against 702 in 1902. In these were employed 11,059 male and 1,399 female workers, as against 11,206 males and 1,314 females in the previous year. The falling off, as will be seen from the table printed below, was due principally to a decrease in the establishments connected with the preparation of drink and stimulants, and those for dress-making. The former decrease may be traced to the completion of the Goldfields Water Supply Scheme, which made 21 water-condensing works, existing in 1902, unnecessary.

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Number of Industrial Establishments (exclusive of Mines) in Western Australia from which Returns were received under the provisions of the Industrial Statistics Act, and the number of Males and Females employed in such Establishments for each of the Two years 1902 and 1903.

Class of Industry.	1902. No. of Establishments.	1902. * Persons employed. Males.	1902. * Persons employed. Females.	1902. * Persons employed. Total.	1903. No. of Establishments.	1903. * Persons employed. Males.	1903. * Persons employed. Females.	1903. * Persons employed. Total.
I. Treating Raw Material, the product of Pastoral Pursuits, or Vegetable Products, not otherwise specified — a. Animal Products ...	5	50	...	50	5	69	...	69
I. Treating Raw Material, the product of Pastoral Pursuits, or Vegetable Products, not otherwise specified — b. Vegetable Products ...	5	25	...	25	5	37	...	37
II. Oil and Fats, Animal and Vegetable ...	4	75	...	75	5	67	...	67
III. Processes relating to Stone, Clay, Glass, etc. ...	40	634	4	638	49	699	1	700
IV. Working in Wood‖ ...	57	3,640	7	3,627	59	3,563	3	3,566
V. Metal Works, Machinery, etc. ...	53	2,175	7	2,182	53	2,053	12	2,065
VI. Connected with Food and Drink or the preparation thereof — a. Animal Food ...	‡ 1	4	...	4	† 24	242	83	325
VI. Connected with Food and Drink or the preparation thereof — b. Vegetable Food ...	25	225	71	296				
VI. Connected with Food and Drink or the preparation thereof — c. Drink and Stimulants ...	124	969	4	973	105	871	7	878
VI. Connected with Food and Drink or the preparation thereof — d. Narcotics ...	4	67	38	105	4	67	39	106
VII. Clothing and Textile Fabrics and Fibrous Materials — a. Dress ...	120	610	1,023	1,633	111	581	1,075	1,656
VII. Clothing and Textile Fabrics and Fibrous Materials — b. Fibrous Materials and Textiles not elsewhere included ...	3	10	4	14	3	13	4	17
VIII. Books, Paper, Printing, Engraving ...	44	804	106	910	47	845	120	965
XI. Vehicles and Fittings, Saddlery, Harness, etc. ...	55	534	4	538	56	507	2	509
XII. Shipbuilding, Fittings, etc. ...	7	76	...	76	8	94	...	94
XIII. Furniture, Bedding, etc. ...	20	276	6	282	21	294	11	305
XIV. Drugs, Chemicals, and By-Products ...	7	37	20	57	7	34	20	54
XV. Surgical and Scientific Appliances ...	‡ 1	8	...	8	‡ 1	8	...	8
XVI. Timepieces, Jewellery, and Plated-ware ...	4	39	...	39	4	33	...	33
XVII. Heat, Light, and Energy ...	16	296	2	298	15	310	1	311
XVIII. Leather-ware (excepting Harness and Saddlery) ...	2	9	3	12	† 4	32	7	39
XIX. Miscellaneous ...	2	15	5	20				
XX. Supplementary § ...	103	648	10	658	107	640	14	654
Total ...	702	11,206	1,314	12,520	693	11,059	1,399	12,458

* Including Working Proprietors, Managers, and Overseers, but not persons employed in their own homes working for establishments. † These particulars have been combined in order to conceal the contents of individual schedules, in compliance with the provisions of Section 18 of "The Industrial Statistics Act, 1897." ‡ Written consent of head of establishment obtained in accordance with Section 18 of "The Industrial Statistics Act, 1897." § The establishments contained in this class are those which come under the definition of Industrial Establishments according to "The Industrial Statistics Act, 1897," but which were excluded from the scheme of classification given in the foregoing 19 classes and adopted by the 1902 Conference of Statisticians held at Hobart. ‖ All the totals for this class include the figures relating to Forest Sawmills.

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It will be seen that Classes IX. and X. are omitted from the above table, the reason being that no Musical Instruments (Class IX.) or Arms and Explosives (Class X.) are manufactured in the State in establishments coming under the terms of the Industrial Statistics Act.

The greater number of the female workers found employment in the manufacture of clothing and textile fabrics, 501 being, during 1903, engaged in tailoring establishments, 467 in dress-making and millinery establishments, 58 in boot and shoe factories, and 49 in shirt and white working establishments, making a total of 1,075 out of 1,399 female workers returned for that year. Of the remainder, 79 were engaged in printing and bookbinding works, or engraving and rubber stamp establishments, 39 in tobacco and cigar works, 41 in confectionery works, 17 in chemical works, 18 in photographic establishments, 23 in cardboard and paper box-making establishments, 22 in butter and biscuit factories, 20 in jam, pickle, sauce, and vinegar works, and the other 65 in various trades. Of the men no less than 4,294 of the total number of 11,059 were engaged in the production of building materials, viz., 2,772 in forest sawmills, 767 in sawmills in the towns and in joinery works, 539 in brick works, 68 in quarries, 117 in lime works, and 31 in glazing establishments. The number of men employed in engineering works, iron works, foundries, plumbing and tin-smithing establishments was 940. In railway and tramway workshops there were 1,059, in electrical engineering works, 27, and in agricultural implement works, 40. In breweries and malt works the men employed numbered 434; in aerated water and cordial factories, 347; in wine-making establishments, 21; in tailoring establishments, 349; in boot and shoe factories, 232; in bakeries, 334; in flour mills, 101; in ice and refrigerating works, 69; in confectionery works, 47; in butter and biscuit factories, 56; in jam, pickle, sauce, and vinegar works, 38; in condiments, coffee, etc., works, 21; in tanneries, 58; in printing and bookbinding works, engraving and rubber stamp establishments, 825; in coach and wagon building and blacksmithing establishments, 344; in saddlery and harness-making establishments, 117; in furniture and cabinet-making establishments, 284; in firewood yards, 136; in electric light and power works, 189; in gas and fire briquette works, 94; in boat-building and dock and slip works, 94; in cycle works, 46; in soap and candle works, 67; in tobacco, cigar, and cigarette works, 67; in chaff-cutting works, 28; in manufacturing jewellers establishments, 33; in guano works, 58; and in various other works, 210.

Of the total number of persons employed, 612 males and 30 females were working proprietors; 424 males and 19 females were managers and overseers; 468 males and 21 females were accountants and clerks; 359 males were engine-drivers and firemen; 6,098 males and 1,313 females were workers in factory, mill, or workshop; 2,181 males were general labourers; 667 males were carters and messengers, and the remaining 250 males and 16

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females were otherwise engaged in connection with some of the establishments. The number of males employed under 16 years of age was 179; that of the females 47. Employed at home, but working for some of the establishments, were one male and 24 females. The total amount of salaries and wages paid during the year was £1,480,102.

The number of industrial establishments in the Perth electoral district alone was 153: in East Perth it was 23; in North Perth, 23; West Perth, 47; South Perth, 9; Guildford, 23; in the Swan district, 18; at Fremantle, 30; at East Fremantle, 20; at South Fremantle, 20; at North Fremantle, 11; at Kalgoorlie, 37; at Boulder, 28; at Hannans, 16; at Coolgardie, 25; at Albany, 14; at Bunbury, 15; at Claremont, 10; at Cockburn Sound, 11; at Cue, 11; at Geraldton, 13; at Mt. Margaret, 15; at Menzies, 10; at Northam, 12; while the remaining 99 establishments were to be found scattered over the various other districts of Western Australia.

The Cockburn Sound Electoral district contained three of the eight lime works found in the State, whilst the neighbouring district of South Fremantle contained two. Of the 37 brick works no less than 13 were found in the Guildford district and five in the Swan district. Of the seven quarries six were worked in the Swan district. The wine-making establishments, of which four were recorded, numbered three in the Toodyay district alone.

Machinery worked by steam, gas, oil, or electricity was used in 387 of the 693 establishments. The total horse-power of the aggregate steam-engines employed was 13,862, that of the gas engines, 156½; of the oil engines, 540½; and that of the electric engines, 2,035½.

Particulars relating to the employment of labour and machinery, and approximate value of land, buildings, plant, and machinery used in connection with the industrial establishments during 1903, are given in the following table, distinguishing the various classes of industry.

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Industrial Establishments, 1903.

Class of Industry.	Number of Establishments.	Working Proprietors, Managers, and Overseers.		Accountants and Clerks.		Engine-drivers and Firemen.	Workers in Factory, Mill, or Workshop.		General Labourers.	Carters and Messengers, etc.		Motive power employed. Horse power of				Approximate value of	
		Males.	Females.	Males.	Females.	Males.	Males.	Females.	Males.	Males.	Females.	Steam Engines.	Gas Engines.	Oil Engines.	Electric Motors.	Land and Buildings.	Plant and Machinery.
																£	£
I. Treating Raw Material, the product of Pastoral Pursuits or Vegetable Products not otherwise specified—																	
a. Animal Products	5	7	...	3	...	4	54	...	1	...	..	153	...	..	...	10680	6050
b. Vegetable Products	5	7	...	2	...	5	2	...	18	3	..	22	...	19	...	1890	2280
II. Oil and Fats, Animal and Vegetable ..	5	9	..	4	...	3	46	...	..	5	...	81	...		...	6870	11474
III. Processes relating to Stone, Clay, Glass, etc.	49	77	...	7	1	23	83	...	437	72	..	443	1	10	5	58575	54842
IV. Working in Wood	59	154	...	169	1	142	1676	...	1132	290	2	2839½	8	57½	25½	182419	625058
V. Metal Works, Machinery, etc	53	98	...	48	1	35	1526	4	290	56	7	373	14	120½	46½	149276	131962
VI. Connected with Food and Drink or the preparation thereof—																	
a. and b. Animal and Vegetable Food ...	24	32	...	20	2	22	125	81	17	26	...	360½	...	29	6	67120	44075
c. Drinks and Stimulants	105	144	2	60	2	52	426	1	41	148	2	1134	45	46	65½	274499	187137
d. Narcotics	4	8	...	7	...	2	48	39	2	...	...	12	...	...	..	10641	4846
VII. Clothing and Textile Fabrics and Fibrous Materials -																	
a. Dress	111	100	41	14	1	2	440	1083	...	25	...	10	...	30½	28	158120	18008
b. Fibrous Materials and Textiles not elsewhere included	8	3	...	1	..	...	7	4	.	2	...	.	.	...		2520	355
VIII. Books, Paper, Printing, Engraving	47	96	3	64	7	6	620	110	12	47	...	2½	31½	85	141½	161275	119325
XI. Vehicles and Fittings, Saddlery, Harness, etc.	56	81	...	22	1	1	396	1	10	7	..	27	9	20	3	70400	16835
XII. Shipbuilding, Fittings, etc.	8	11	...	...	..	1	79	..	2	1	...	8	..	12½	12	4387	5810
XIII. Furniture, Bedding, etc.	21	29	...	6	1	1	247	10	3	8		10	8	10	37	36918	4824
XIV. Drugs, Chemicals, and By-Products ...	7	9	...	1	...	2	14	20	3	5	...	22	...	.	5	14149	10269
XV. Surgical and Scientific Appliances	1	1	..	1			6		.			..	.			3120	400
XVI. Timepieces, Jewellery, and Plateware ...	4	3	.	2			25			3					2	5720	708
XVII. Heat, Light, and Energy . .	18	28	...	23	1	51	141		60	23		8188	40		1601½	683 16	399713
XVIII. Leatherware (excepting Harness & Saddlery) } XIX Miscellaneous }	4	6		2		.	22	7		2					.	8210	968
XX. Supplementary	107	138	1	12	3	7	148	3	144	194	5	176½		109½	57½	[illegible]	[illegible]
Total, 1903	[illegible]	[illegible]	49	[illegible]	21	[illegible]	[illegible]	1318	2181	917	16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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How the value of plant and machinery employed in each class compare with the figures for the previous year is shown in the following table:—

Class of Industry.	Approximate Value of Plant and Machinery.	
	1902.	1903.
	£	£
I.—Treating Raw Material, the product of Pastoral Pursuits, or Vegetable Products not otherwise specified—		
(a.) Animal Products	4,350	6,050
(b.) Vegetable Products	1,470	2,280
II.—Oil and Fats, Animal and Vegetable ...	10,000	11,474
III.—Processes relating to Stone, Clay, Glass, etc.	55,091	54,842
IV.—Working in Wood	703,788	625,053
V.—Metal Works, Machinery, etc.	139,420	131,962
VI.—Connected with Food and Drink, or the preparation thereof—		
(a.) Animal Food	1,500	44,075
(b.) Vegetable Food	39,552	
(c.) Drinks and Stimulants	181,255	187,137
(d.) Narcotics	4,608	4,846
VII.—Clothing and Textile Fabrics and Fibrous Materials—		
(a.) Dress	16,529	18,008
(b.) Fibrous Materials and Textiles not elsewhere included ...	120	355
VIII.—Books, Papers, Printing, Engraving ..	119,366	119,325
XI.—Vehicles and Fittings, Saddlery, Harness, etc.	17,061	16,835
XII.—Shipbuilding, Fittings, etc.	4,700	5,810
XIII.—Furniture, Bedding, etc.	3,902	4,824
XIV.—Drugs, Chemicals, and By-products ...	10,875	10,269
XV.—Surgical and Scientific Appliances ...	400	400
XVI.—Timepieces, Jewellery, and Platedware ...	650	708
XVII.—Heat, Light, and Energy	325,318	399,713
XVIII.—Leatherware (excepting Harness and Saddlery)	80	365
XIX.—Miscellaneous	90	
XX.—Supplementary	42,885	38,388
Total	1,683,010	1,682,719

There was, as the figures show, a slight falling off in the aggregate value of plant and machinery, the most important decrease being traceable to Class IV., and more particularly to Forest Sawmills, the principal industry included in this class. This may possibly be due to the amalgamation of several separate sawmills with "Millar's Karri and Jarrah Company (1902), Limited," and a consequent re-estimate of the values of plant and machinery. A very considerable increase was experienced in Class XVII., for practically the whole of which the Electric Light and Power Works were responsible. Among the industries included in Class XX. one, that of wine-making, is of especial importance, because of the exceptional suitableness of the State for grape-growing. In view of this, the fact that the number of wine-

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making establishments decreased from five in 1902 to four in 1903, whilst the value of Plant and Machinery also decreased, deserves notice. It is highly probable that this may be due to the lower tariff which obtained in 1903, and which facilitated the importation of wines from the other States. This factor must necessarily, for some time at any rate, affect the local industry unfavourably.

As regards the number of hands employed in the various industries, the following particulars will be of interest. Out of the total number of 693 establishments, only 18 employed more than 100 hands. From 51 to 100 hands were employed in 16 establishments; 89 establishments employed from 21 to 50; 145 from 11 to 20; 264 from 5 to 10; 77 employed four hands; and 84 less than 4.

The daily working hours in most of the establishments averaged slightly over eight hours. But in some of the industries, notably in the chaffcutting works, flour mills, eucalyptus oil, and paint works, wine-making establishments, and guano works, the hours of certain classes of employees were much longer, reaching, in particular cases, 10 hours.

The number of establishments in each industry comprised in the various classes, in 1903, is given in the following statement, the corresponding figures for 1902 being in every instance shown in parentheses:—

Class I.: Treating raw material, the product of pastoral pursuits or vegetable products not otherwise specified.—A. Animal products: Bone mills, 2 (2); fellmongery, 1 (*nil*); tanneries, 2 (3). B. Vegetable products: Chaff-cutting works, 3 (2); corn-crushing works, 2 (2).

Class II: Oil and fats, animal and vegetable.—Soap and candle works, 5 (4).

Class III.: Processes relating to stone, clay, glass, etc.—Brick-works, 37 (31); glazing establishments, 2 (3); lime works, 8 (4); modelling works, 2 (2).

Class IV: Working in wood.—Box and packing-case making establishments, 2 (*nil*); cooperage works, 1 (1); forest sawmills, 29 (27); town saw mills and joinery works, 27 (29).

Class V.: Metal works, machinery, etc.—Agricultural implement works, 3 (4); engineering works, iron works, foundries, plumbing and tinsmithing establishments, 44 (44); railway and tramway workshops, 4 (4); wire-working establishments, 2 (1).

Class VI.: Connected with food and drink, or the preparation thereof.—A. Animal food: Butter factory 1 (1). B. Vegetable food: Biscuit factory, 1 (1); confectionery works, 4 (5); flour mills, 14 (16); jam, pickle, sauce, and vinegar works, 4 (3). C. Drinks and stimulants: Aerated water and cordial factories, 61 (62); breweries, 35 (34); condiments, coffee, etc., works, 2 (2); ice and refrigerating works, 6 (5); malt works, 1 (*nil*). D. Narcotics: Tobacco, cigar, and cigarette works 4 (4).

Class VII.: Clothing and textile fabrics and fibrous materials.—A. Dress: Boot and shoe factories, 16 (15); dressmaking and millinery establishments, 38 (42); shirtmaking and white-working

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establishments, 2 (*nil*); tailoring establishments, 55 (63). B. Fibrous materials and textiles not elsewhere included: tent-making establishments, 3 (3).

Class VIII.: Books, paper, printing, engraving.—Cardboard and paper box-making establishments, 2 (2); engraving and rubber stamp establishment 1 (*nil*); photographic establishments, 4 (3); printing and bookbinding works, 40 (39).

Class XI.: Vehicles and fittings, saddlery, harness, etc.—Coach and wagon building and blacksmithing establishments, 42 (41); cycle works 6 (5); saddlery and harness-making establishments, 8 (9).

Class XII.: Shipbuilding, fittings, etc.—Dock and slip works, 1 (1); boatbuilding works, etc., 7 (6).

Class XIII.: Furniture, bedding, etc.—Furniture, bedding, and cabinet-making establishments, 19 (18); picture-frame making establishments, 2 (1).

Class XIV.: Drugs, chemicals, and by-products.—Chemical works, 3 (3); artificial manure works, 1 (1); baking powder factory, 1 (1); eucalyptus oil works, 1 (1); paint works, 1 (1).

Class XV.: Surgical and scientific appliances.—Optician's establishment, 1 (1).

Class XVI.: Timepieces, jewellery, and plated ware.—Manufacturing jewellers' establishments, 4 (4).

Class XVII.: Heat, light, and energy.—Electrical engineering works, 1 (1); electric light and power works, 11 (11); gasworks, 2 (3); fire briquette works, 1 (1).

Class XVIII.: Leatherware (excepting harness and saddlery). —Leather goods manufacturing establishment, 1 (2).

Class XIX.: Miscellaneous.—Brushware establishments, 2 (1); wickerware establishment, 1 (1).

Class XX.: Supplementary.—Bakeries, 51 (54); firewood yards, 42 (33); quarries, 7 (8); wine-making establishments, 4 (5); guano works, 1 (1); monumental works, 2 (2).

In comparing the figures relating to the separate industries as recorded for the year 1903 with those collected for 1902, it must be remembered that these figures are not in every instance a complete index to the number of establishments engaged in some special industry, as the provisions of the Act make it possible that an establishment, owing to alterations in the manner in which it is worked, may be one year included in the list, and another year excluded from it, without, however, having ceased to exist. It is presumed that the changes in the tariff which have occurred of late years may have affected some of the industries, especially those which were formerly protected by a higher tariff. To what extent, however, this is the case, it would be extremely difficult to gauge, in view of the many additional factors which may have influenced these industries in a community subject to such rapid changes as have been experienced in Western Australia for several years past.

Particulars for the year 1903 of the working of the more important industries, notably those in which more than 100 hands

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were employed, and those which supplied returns relating to their production, are given in the following table:—

Industries.	Establishments. Using Machinery worked by Steam, Gas, Oil, or Electricity.	Establishments. Others.	Persons Employed. Working Proprietors.	Persons Employed. Employees.	Horse Power of Engines. Steam. Noml.	Horse Power of Engines. Gas. Brake	Horse Power of Engines. Oil. Brake	Horse Power of Engines. Electric Motor. E.H.P.	Average time in operation during the year.	Amount of Salaries and Wages paid during the Year.	Average monthly Wages of Employees.*	Approximate Value of Land and Buildings.	Approximate Value of Plant and Machinery.
	No.	No.	No.	No.	H.P.	H.P.	H.P.	H.P.	months.	£	£	£	£
Tanneries	2	...	1	57	50	...	...	...	12·00	6,016	8·80	6,500	3,300
Soap and Candle Works	5	...	4	63	81	...	...	...	11·58	6,974	9·57	6,870	11,474
Brick Works	22	15	45	495	443	1	10	...	11·14	59,647	10·82	36,370	46,692
Lime Works	...	8	6	111	...	...	...	...	11·64	14,219	11·01	13,035	6,630
Forest Sawmills	29	...	26	2,747	2,489	...	26	...	11·53	371,274	11·72	117,582	582,139
Town Sawmills and Joinery Works	20	7	14	755	350	...	31	15	11·92	99,850	11·10	63,617	42,624
Engineering Works, Iron Works, Foundries, Plumbing and Tinsmithing Establishments	27	17	52	890	215	14	112	18	11·67	115,793	11·15	68,786	89,275
Railway and Tramway Workshops	3	1	...	1,068	142	...	8	20	12·00	148,899	11·62	75,500	40,437
Flour Mills	14	...	5	96	318	...	...	...	10·11	11,252	11·59	50,760	32,300
Aerated Water and Cordial Factories	56	5	54	298	152	7	37	34	11·37	32,681	9·65	52,001	58,446
Breweries and Malt Works	32	4	23	412	623	...	9	8	11·47	71,617	15·15	172,648	91,631
Ice and Refrigerating Works	6	...	4	66	358	...	...	20	10·33	9,923	14·56	45,700	34,740
Tobacco, Cigar, and Cigarette Works	1	3	6	100	12	...	...	...	6·11	4,537	7·42	10,641	4,846
Boot and Shoe Factories	4	12	17	273	10	...	30	...	11·41	24,781	7·95	22,400	8,901
Dressmaking and Millinery Establishments	2	36	22	445	...	...	...	3	11·07	20,476	4·16	28,980	1,742
Tailoring Establishments	4	51	57	793	...	...	...	19	11·41	79,687	8·80	105,310	6,715
Printing and Bookbinding Works; Engraving and Rubber Stamp Establishments	38	3	42	862	2	31	85	140	11·94	132,858	12·91	137,625	115,325
Coach and Wagon-building and Blacksmithing Establishments	9	33	55	289	27	...	20	...	11·52	38,754	11·64	36,800	13,785
Saddlery and Harness-making Establishments	1	7	8	110	...	...	...	1	12·00	12,407	9·40	19,410	1,380
Dock and Slip Works; Boatbuilding Works, etc.	5	3	9	85	8	...	12	12	12·00	11,335	11·11	4,387	5,810
Furniture, Bedding, and Cabinet-making Establishments	8	11	19	274	10	8	10	37	11·82	35,612	11·00	34,018	4,644
Electric Light and Power Works	11	...	..	189	8,107	40	..	1,591	11·94	34,358	15·23	46,141	329,123
Glasworks, Fire Briquette Works	3	...		94	81	..	...	..	11·14	11,188	10·68	17,985	68,090
Bakeries	1	50	61	285		...			11·70	41,505	12·45	51,246	11,116
Firewood Yards	42		46	90	99		100	57	10·57	9,759	10·26	20,368	8,100
Quarries	4	3	3	66	66				11·28	7,094	9·43	8,504	10,372
Guano Works	1		1	57	5			...	8·00	3,000	6·58		7,000

* Rates of Wages are given in detail in chapter "Wages and Prices."

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In several cases, as may be seen from the above figures, the lower average wages were paid in those industries which employed a large proportion of female hands. It is obvious, however, that these averages cannot be taken as an entirely reliable guide to determine the actual wages paid in the various industries, as they depend on other conditions besides the prevailing rates of remuneration. In some trades, for instance, the proportion of apprentices employed is greater than in others, and this will naturally lower the average.

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PART XI.—SOCIAL.

I.—EDUCATION.

(Information supplied by C. R. P. Andrews, M.A., Inspector General of Schools.)

ESTABLISHMENT OF SYSTEM.—The statutes in force relating to public instruction in Western Australia are the Elementary Education Act of 1871, with the Amending Act of 1893; "The Assisted Schools Abolition Act, 1895," and "The Public Education Act, 1899."

GENERAL FEATURES.—The system is compulsory and free, the school fees having been abolished by "The Public Education Act, 1899." The teaching in the Government schools is secular; but general religious teaching is given, which, by "The Amendment Act, 1893," is classed under "secular" instruction. The text-books in this subject are the Irish National series. By the same Act ministers of religion are permitted, under certain regulations, to teach the children of their own denomination for half-an-hour each week during school hours.

MANAGEMENT.—By "The Amendment Act, 1893," the Central Board of Education, which for over 20 years had administered the Education Acts, was abolished, and the Department was placed under the charge of a specially constituted Minister of Education, who is assisted by various committees of management, acting generally as Boards of Advice. The members of these committees are appointed by the Governor in Council, on the recommendation of the Minister. In the case of some few schools in outlying parts of the State the Resident Magistrate for the district assists the Department.

TEACHERS.—Teachers in Government schools are appointed by the Governor; but the Minister has power delegated to him to make certain minor appointments.

All teachers appointed to Government schools are expected, either upon appointment or within a reasonable time thereof, to qualify for a certificate; but in certain cases certificates are granted on the qualifications already held. Both schools and certificates are classified, and the teachers' salaries are regulated by this classification. The number of teachers employed in Government schools at the end of the year 1902 was 160 male and 74 female head teachers;

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67 male and 158 female assistant teachers; 20 male and 69 female pupil teachers; 14 male and 55 female monitors, and 60 sewing mistresses; total 677 teachers. At the end of 1903 there were 170 male and 78 female head teachers; 59 male and 193 female assistant teachers; 42 male and 133 female monitors, and 64 sewing mistresses; total 739 teachers. At the end of 1904 there were 183 male and 88 female head teachers; 82 male and 236 female assistant teachers; 35 male and 120 female monitors, and 65 sewing mistresses; total, 809 teachers. In 1900 and 1901 there had also been a teacher of manual training (wood-working and metal-working), with two pupil teachers and a teacher of cookery. At the end of 1902 two additional teachers of manual training were employed, and two of cookery, making eight in all. At the end of 1903 there was one organising instructor of manual training, with four teachers in charge of centres, one assistant and two monitors. For the cookery and laundry classes there was one organiser, with two teachers in charge of centres, and two assistants. At the end of 1904 there was one organising instructor of manual training, with four teachers in charge of centres, and four assistants. For the cookery, laundry, and housewifery classes there was one organiser, with three teachers in charge of centres, two assistants, and two monitors.

SPECIAL CLASSES.—*Manual Training.*—There were 16 Manual Training Classes in operation during 1903; one was closed in June, thus leaving 15 open at the end of the year. New centres were equipped and opened at Leederville, Coolgardie, Fremantle, Midland Junction, and Claremont, and at other schools special instruction has been imparted by one of the staff who has qualified in the subject. The number of scholars who received instruction in wood-work during the year amounted to 1,711, and on the last school day there were 1,196 on the rolls. During 1904 there were 22 classes in operation; one was closed in June, thus leaving 21 open at the end of the year. An additional centre was opened in Perth and classes were commenced at 5 additional schools. The number of scholars who received instruction in this work amounted to 2,291, and on the last school day there were 1,441 on the rolls.

Cookery Classes.—New centres were opened during 1903 at Fremantle, Boulder, Kalgoorlie, and Claremont; 807 girls received instruction during the year. During 1904 new centres were opened at Albany and Leederville; 946 girls receiving instruction during the year.

Laundry Classes.—Classes for instruction in laundry work were established during 1903 for the first time, and at the end of the year there were two centres, Perth and Fremantle; 109 girls received instruction during this period, and on the last school day there were 71 on the rolls. During 1904, 183 girls received instruction, and 98 were on the rolls at the end of the year.

Housewifery.—Classes for instruction in domestic economy were opened for the first time in July of 1904, the centre being

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Perth; 66 girls received instruction, and there were 55 on the roll at the end of the year.

The grand total for the above classes was:—Number of scholars enrolled during the year 1903, 2,627; for 1904, 3,486; the number of distinct scholars on the roll on the last day the classes were open for 1903 was 1,715; for 1904, 1,985; the number of classes held during 1903, was 3,739; and during 1904, 5,193. The average attendance per day for 1903 was 455, and for 1904, 587.

Monitors' Classes.—During the latter part of 1903 central classes for the instruction of Monitors in Perth and Fremantle were established, and the monitors outside these districts are now taught by correspondence from the Instructors of these classes, by means of printed Supplements to the Department's monthly circular. During 1904 the number in attendance at the central classes was 91, and the number on the registers of the correspondence classes was 73.

Drill.—This subject has been remodelled, and in January, 1903, an Inspector of Cadets was appointed, whose duty it is to bring the curriculum up to date, and to organise and instruct the teaching staff to carry it out. The number of boys enrolled in the Cadet Corps at the end of 1904 was 1,267.

Training College.—Formerly, the State laboured under a great disadvantage in not being able to train its own teachers, and thus was compelled to rely for its supply of trained teachers on the other States. This disability has, however, now been removed by the establishment of a Training College. The College was formally opened on the 30th January, 1902. The resident staff consists of the Principal and two assistants. Lectures are also given by special teachers in normal work, kindergarten, domestic economy, needlework, singing, and manual training. The number of students at the end of April, 1902, was 41 (30 males and 11 females); of these, 28 were resident in the College, while 13 were day students. For the school year 1903-4 there were 15 male and 37 female teachers attending the College; of these, 37 were in residence. At the end of 1904, 55 students were in attendance, and of these 39 were in residence.

The minimum age at which candidates may enter is 17 years, and the course is for two years. The Senior Monitors' Examination, held in December of each year, is treated as an Entrance Examination for the College.

Scholarships.—There are annually offered for competition among boys and girls between 11 and 13 years of age attending the elementary schools, three or more scholarships, each of the value of £50 per annum, tenable for four years at a secondary school recognised as such by the Department for this purpose. Bursaries for boys and girls, each of the value of £10, tenable for one year

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at an elementary school under the Act, are also annually offered for competition among children attending Government schools or other efficient schools where the average fee does not exceed one shilling per week. Eight junior exhibitions of the value of £15 each, and five senior of the value of £25 each, are annually competed for by boys and girls between the ages of 14 and 18 years. In 1900 a further exhibition was added, called the Government University Exhibition, of the value of £150 a year, tenable for three years. This is competed for by boys under 19 years of age, and is awarded conditionally on the winner entering into residence at a recognised University of the British Empire.

The junior exhibitions are awarded on the results of the Adelaide Junior Public Examination, and the senior exhibitions and the University Exhibition on the combined results of the Adelaide Senior and Higher Public Examinations.

Rhodes Scholarships.—These are worth £300 a year for a three years' course at Oxford. Candidates must be British subjects, unmarried, and not less than 17 or more than 25 years old. They must also have been educated in this State for at least three years immediately preceding the election. One candidate is elected each year. The selection is made about the end of January by a committee comprising His Excellency the Governor (in his private capacity), the Chief Justice, and the Inspector General of Schools. Two scholarships have now been awarded, the first in 1904, and the second in 1905; the successful candidates being scholars from the Perth High School and the Guildford Grammar School respectively.

STATISTICS FOR 1899, 1900, 1901, 1902, 1903, and 1904.—The number of Government schools in operation at the close of these years was 205, 218, 233, 245, 262, and 284, respectively. The enrolment was 16,053, 18,557, 20,584, 22,765, 24,267, and 25,979; and the average attendance 12,465, 14,463, 16,423, 18,448, 20,283, and 22,111 for same periods.

The percentage of average attendance to the average or mean enrolment for the year 1899 was 79; for 1900 and 1901, 81; for 1902, 82; for 1903, 83; and for 1904, 84.

FINANCIAL.—The total expenditure for the year ended 31st December, 1902, was £109,197; for 1903, £126,662; and for 1904, £142,526. The expenditure on rents and buildings, including school grounds, but exclusive of amounts paid by the Public Works Department, was £946 in 1902; £1,054 in 1903; and £718 in 1904. The expenditure on Bursaries, Scholarships, and Exhibitions was £1,059 in 1902; £1,274 in 1903; and £1,284 in 1904. The expenditure on Evening Schools, including those at Perth and Fremantle, was £880 for 1902; £1,482 for 1903; and £1,658 for 1904. On Technical Education the expenditure was £3,231 for

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1902; £4,052 for 1903; and £5,528 for 1904. On Manual Training and Cookery classes the expenditure was £1,568 for 1902; £4,157 for 1903; and £4,218 for 1904. The stock purchased in 1902 cost £3,570; it amounted to £4,988 in 1903; and £6,235 in 1904. The expenses of the Training College came to £3,753 in 1902; to £3,630 in 1903; and to £3,712 in 1904. In 1904 the expenditure on Monitors' Classes amounted to £1,219. For Cadets the expenditure was £398 in 1902; £3,668 in 1903; and £1,269 in 1904.

The net charge to the State for the upkeep of Government schools amounted to £97,139 in 1902; £105,317 in 1903; and £121,369 in 1904. The foregoing amounts are made up as follows for each year:—(1) Cost of administration, including departmental salaries, travelling expenses, postage, printing, compulsion, etc., and (2) Teachers' salaries and grants, teachers' travelling expenses, school furniture, maintenance, and apparatus. Under the first head, in 1902, £10,389 was expended; in 1903, £10,024; and in 1904, £11,038; and under the second head, £86,750 in 1902; in 1903, £95,293; and in 1904, £110,331. The expenditure by the Public Works Department on school buildings was £27,555 for 1902; for 1903, £34,927; and for 1904, £32,175. In addition to this amount the Public Works Department, in 1903, also spent £865 on the Manual Training classes; on the Technical School, £1,660, and on the Training College, £433; in all a total expenditure of £37,885 during that year. In 1904 an additional sum of £846 was spent on the Technical School by the same department.

The amount received from Government schools in 1899, 1900, and 1901 was, respectively, as follows:—Book sales, rents, etc., £801, £1,136, and £1,183; Evening school fees £239, £255, and £220; Technical school fees for 1900 amounted to £161, and for 1901 to £221. The day school fees, which were abolished from the 7th October, 1899, amounted for the first nine months of 1899 to £3,475. The amount received from book sales, etc., in 1902, 1903, and 1904, was respectively, £1,323, £1,595, and £1,800; from Evening school fees, £140, £225, and £313; from Technical school fees, £404, £629, and £1,181; and from Training College fees, £136, £123, and £148.

The cost per head, calculated on the average attendance of the children enrolled, administration being included, was:—

	£	s.	d.		£	s.	d.		£	s.	d.
1899 ..	4	12	5	1901 ...	5	1	0	1903 ...	5	1	3
1900 ...	4	17	3	1902 ...	5	1	10	1904 ...	5	7	0·5

When the average or mean enrolment of scholars is taken as the basis of calculation, the cost per head, including administration, was:—

	£	s.	d.		£	s.	d.		£	s.	d.
1899 ...	3	11	9	1901 ...	4	1	10	1903 ...	4	3	8
1900 ...	3	19	0	1902 ...	4	3	1	1904 ...	4	10	1·1

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The table hereunder shows the cost exclusive of administration.

Table showing Enrolment, Average Attendance, and Cost per Head, in Government Schools, in comparison with former years.

Year.	No. of Schools.	Enrolment. †	Average enrolment for year.	Average Attendance during each year.†	Per-centage.	Cost per Head of average attendance. †	Cost per Head of mean enrolment. †
						£ s. d.	£ s. d.
1894	116	5,037	...	3,552	71	3 6 1	‡
1895	133	6,451	...	4,685	73	3 14 6	‡
1896	150	9,008	...	6,470	72	3 10 6	‡
1897	167	12,262	*a* 11,493	8,976	*b* 78	3 10 6	‡
1898	186	14,424	14,495	10,915	75	3 12 7	‡
1899	207	16,053	15,689	12,465	79	3 17 9	3 0 4
1900	223	18,557	18,055	14,663	81	4 6 11	3 8 5
1901	242	20,548	20,277	16,423	81	4 9 0	3 12 1
1902	250	22,765	22,605	18,448	82	4 10 9	3 14 1
1903	270	24,267	24,532	20,283	83	4 11 5	3 15 9
1904	290	25,979	26,272	22,111	84	4 17 3	4 1 10

† Including schools closed during the year. ‡ Not available for these years. *a* Not ascertained previous to 1897. *b* From and including 1897, the percentage of attendance to enrolment has been calculated on the basis of "average attendance" to "average enrolment."

Under the Education Act, the Minister is empowered to expend an annual sum not exceeding £4 10s. per head, calculated upon the aggregate average daily attendance of all children above the age of four years and under the age of 16 years attending the Government schools, and an additional sum up to five shillings per head for books, etc.

COMPULSION.—The year 1899 was marked by the passing of an entirely new Act, "The Public Education Act, 1899," which contains measures for dealing with compulsion reaching considerably farther than those in previous Acts. Among these may be mentioned :—The forbidding of employment of children of school age during school hours, except by special permission of the Minister; providing for the registration and efficiency of private schools; empowering a census to be taken of all children within any district; requiring children of compulsory age to attend every school day; making age, and not "standard passed," the ground of exemption from attendance at school. Under this Act the Minister is empowered to grant exemption from attendance to children between 12 and 14 years of age in case of poverty or sickness of parents. During 1899 exemptions were applied for in 60 cases, of which 50 were granted. Prosecutions to the number of 108 were authorised, with the following results:—Fined, 83; cautioned, and costs inflicted, 10; sent to Industrial School, 12; dismissed, 1; withdrawn, 2. In 1900, 90 applications for exemption were received, of which 59 were granted; 266 summonses also were issued against parents with the following results:—Fined, 186; cautioned, 55; withdrawn, 2; committed to Industrial School, 21; dismissed, 2. In 1901, 82 applications for exemption were received, and 44 granted;

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summonses were issued in 190 cases, with the following results:—Fined, 135; cautioned, 28; withdrawn, 5; committed to Industrial School, 22. In 1902, 84 applications for exemption were received, of which 51 were granted; 205 prosecutions were authorised, with the following results:—Fined, 129; cautioned and costs inflicted, 41; dismissed, 7; withdrawn, 4; committed to Industrial Schools, 24. During 1903, 90 applications for exemption were received, of which 67 were granted; 341 prosecutions were authorised, with the following results:—Fined, 275; cautioned and costs inflicted, 44; 4 dismissed; 3 withdrawn; and 15 committed to Industrial Schools. During 1904, 99 applications for exemption were received, of which 63 were granted; 270 prosecutions were authorised, with the following results:—Fined, 201; cautioned and costs inflicted, 42; 4 dismissed; 7 withdrawn; and 15 committed to Industrial Schools.

University and Technical Education.—Western Australia has no University at present, though the establishment of one in the near future is under consideration. In December, 1903, a Bill, entitled the "University Endowment Act," was passed by Parliament. Trustees were appointed, and a large area of land was reserved for an endowment.

The Perth Technical School is affiliated with the Adelaide University. Lectures are at present being given to enable students to prepare for their degrees in Arts and Science. The authorities of the Adelaide University hold annually their primary, junior, and senior public examinations, their music examinations, and their examinations for the B.A. and B.Sc. degrees as candidates offer themselves. The results may be seen from the following particulars supplied by the Secretary of the West Australian Centre of the University of Adelaide:—

No of Certificates gained.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.
Public Examinations.									
Preliminary (now discontinued)	11	21	29	51	84	7			
Primary	...	...	...	...	...	103	105	116	11[illegible]
Junior	7	5	a 8	a b 23	a c 35	a b 37	a b 41	b c 58	b 74
Senior	...	1	6	6	7	c 8	6	a 16	a 21
* Higher	...	...	...	2	...	4	9	12	[illegible]
* B.A., B.Sc., etc.	...	...	...	...	4	9	6	7	3
Practice of Music.									
Primary (now discontinued) ...	...	...	...	...	9	13	9		
Elementary	...	...	...	...	...	...	17	32	[illegible]
Lower Division	...	...	...	...	...	...	10	23	[illegible]
Higher Division	...	...	...	...	...	...	6	9	[illegible]
Intermediate (formerly Junior)	...	...	...	...	3	14	2	1	12
Advanced (formerly Senior) ...	...	...	...	...	1	3	2	3	
Licentiate of Associated Board (L.A.B.)	...	...	...	...	...	...		1	1
Theory of Music.									
Primary	...	...	4	...	...	2	1	3	2
Junior	...	...	...	2	...	1	4	2	1
Rudiments, Local Centre ...	...	...	...	...	...	...		5	11
Intermediate Harmony	...	...	...	...	...	...	...	2	4
Advanced Harmony	...	...	...	...	...	...		1	1
Rudiments, Schools	...	...	...	...	...	...	...		6
Lower Division Harmony and Grammar	...	...	...	...	...	...	...	2	7
Higher Division Harmony and Grammar	...	...	...	...	...	...	...	2	
Total	18	27	47	84	143	201	218	239	[illegible]

a One candidate gained 1st University Prize, £10. One candidate gained 2nd University Prize, £5. c One candidate gained 3rd University Prize, £[illegible].

* The number of candidates who passed in one or more subjects is given.

The Practice of Music Examinations are conducted by the Examiner for the Associated Board of the Royal Academy and Royal College of Music, London.

All the examinations held by the Adelaide University are under the control and management of a local committee.

Candidates for the Matriculation Examination of the Melbourne University can also be examined locally. In 1901 arrangements were completed whereby candidates may present themselves in this State for the examinations leading up to the B.A. and LL.B. degrees of the London University, and in 1902 the B.Sc., B.S. (Economics), and B.D. degrees were added to this list. A local committee also arranges public courses of University Extension Lectures in Perth.

Perth Technical School.—This school, which has been referred to above in connection with the Adelaide University, was opened on the 16th May, 1900. During that year classes were held in chemistry, assaying, mineralogy, carpentry, metal-working, wood-carving, and drawing. The success of the first year's work was so marked that early in 1901 a physical laboratory, a new chemistry lecture-room, and a metallurgical plant were erected, and the buildings were otherwise added to. The years 1901 and 1902 witnessed also a further growth in the work of the school, as, besides the structural additions noted above, a physical lecture-room, two new assaying rooms (one for volumetric and one for fire work), a large balance-room, a room for plumbing-work, and one for fitting and turning, were erected. During the years 1903 and 1904 further additions and alterations were made to the old buildings, but an excellent new site has now been chosen, and instructions have been given to prepare plans for the erection of a new school. During these years classes were held in the following subjects:—Art, assaying, agriculture, blacksmithing, chemistry, carpentry, electricity, fitting and turning, geology, mathematics, metallurgy, metal-working, mechanical drawing, mineralogy, pharmacy, physics, plumbing, practical, plane, and solid geometry, and wood-carving.

During the last term of the years 1900, 1901, 1902, 1903, and 1904 the total enrolment was 66, 99, 168, 292, and 344 respectively. The staff for the five years enumerated numbered 7, 9, 14, 19, and 26 respectively, including the Director. The revenue consisted of:—For 1900, fees, £152; other sources, £8 11s. 4d.; for 1901, fees, £214; other sources, £7 2s. 3d.; for 1902, fees, £404; other sources, £10; for 1903, fees, £629; other sources, £24; and for 1904, fees, £961; other sources, £36. The disbursements for 1900 amounted to £964; for 1901, to £1,432; for 1902, to £3,231; for 1903, to £4,052; and for 1904, to £5,528. These amounts include maintenance and apparatus.

Coolgardie Technical School.—Early in 1904 this school, which was formerly a branch of the W.A. School of Mines at Coolgardie, was transferred by the Mines Department to the Education De-

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partment. The number of students greatly increased during the year, owing to the addition of technical and other classes, which have attracted students not provided for under the previous *régime*.

At the end of the year there were—6 instructors, and an enrolment of 55 students. The revenue for the year 1904 amounted to £166, mostly fees. The following are the subjects which were taken up:—Assaying, chemistry, electricity, engine-driving, geometry, mathematics, physics, wood-working, and ordinary subjects.

A branch of this school (for evening classes) was opened at Bonnievale on 30th May, 1904, and is conducted by the head-master of the local State school, under the superintendence of the Director of the Coolgardie Technical School. At the end of the year there were 11 students on the roll, and the amount received in fees was £16 11s. 6d. The subjects taken up were the ordinary ones, and preparatory mathematics.

Midland Junction.—Technical classes were also commenced at Midland Junction on 3rd June, 1904. At the end of the year there were 18 students on the roll, and the fees received up to the end of December amounted to £25 12s. The following subjects were taken up:—Art and applied art, mechanical drawing, advanced drawing, and preliminary mathematics.

Boulder Technical and Evening Classes.—These classes were commenced in September, 1902, and were under the direction and control of a local committee of management, who received from the Government a £1 for £1 subsidy on all fees received. This subsidy ceased in July, 1904, when the committee handed the classes over to the Education Department.

A site has been set aside for a Technical School at this centre.

At the end of the years 1902, 1903, and 1904, there were on the staff six, eight, and 11 teachers, whilst the number of students on the roll was 95, 62, and 56, respectively. The fees amounted to:—For 1902, £100; for 1903, £254; and for 1904, £223.

The subjects taken up were Book-keeping, Dresscutting, Electricity and Magnetism, Mechanical Drawing, Shorthand, Surveying, Woodwork, and Advanced and Elementary ordinary subjects.

Evening Classes.—These classes have been established with the following objects:—(1.) Continuation classes, in which the subjects taught in elementary schools might be carried to a further and wider extent, and in which more advanced subjects might be introduced; and (2.) a means by which might be gauged the success of a fully-developed technical course, and a basis on which such might later on be established. The second of these objects, as will be seen from the foregoing reference to Technical Education, was brought to a practical issue; and there is no doubt that, in

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Perth at least, the establishment of the Technical School detracted largely from the importance of the evening classes. Some of the classes were, in fact, transferred to the Technical School, as being more properly within its province. These remarks, however, do not apply to the same extent as regards Fremantle, where the classes are still largely technical in character.

Classes were established in Perth and Fremantle in 1900; at Boulder in September, 1902; and at Kalgoorlie in February, 1903. Classes were also opened in six new districts during 1903, but three of these were closed before the end of the year.

During 1904 three additional classes were opened in country districts; of these, two were closed before the end of the year. Manual Training evening classes were also opened at Fremantle and Midland Junction.

The Fremantle and Kalgoorlie classes are under the direction and control of a local committee, who receive from the Education Department a £1 for £1 subsidy on all fees received.

This also applied to the Boulder classes until July of 1904, when, as previously stated, they were handed over by the Committee to the Government, and the subsidy ceased.

The number of distinct pupils on the rolls of these classes during the last school week in 1903 was 560, and for 1904 (Boulder excluded), 347.

The following statistics of the four principal schools should prove of interest:—

Place.	Year.	Number of individual students at end of year.		Staff at end of year.		Finance.					
		Males.	Females.	Males.	Females.	Fees received.			Disbursements.		
						£	s.	d.	£	s.	d.
Perth ...	1900	106	35	7	3	221	12	0	736	17	11
Do. ...	1901	71	32	5	3	185	17	6	618	8	3
Do. ...	1902	71	80	5	4	133	8	6	487	10	2
Do. ...	1903	87	35	6	2	175	8	3	466	9	6
Do. ...	1904	80	42	7	2	151	18	3	403	0	0
Fremantle ...	1900	116	...	5	1	157	4	0	401	11	7
Do. ...	1901	105	23	6	1	238	6	2	548	2	2
Do. ...	1902	133	27	8	2	307	2	0	368	13	0
Do. ...	1903	92	57	8	3	332	18	4	579	5	9
Do. ...	1904	77	48	7	3	255	2	10	563	3	0
Boulder	1902, 1903-4	See	under	Technical		Schools.					
Kalgoorlie ...	1903	46	10	6	...	158	12	9	287	0	0
Do. ...	1904	34	11	4	1	107	17	6	245	16	10

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During 1904 the following subjects were taken up:—

Perth.—(1.) Ordinary Subjects: Arithmetic, composition, cookery, book-keeping, dresscutting, English, drawing, history, mensuration, writing, dictation, woodwork.

(2.) Special or advanced Subjects: Arithmetic, algebra, Euclid, English, French, geography, geometry, and Latin.

Fremantle.—Arithmetic, algebra, art book-keeping, drawing, dresscutting, elementary subjects, electrical engineering, German, machine drawing, mechanics, shorthand, and steam.

Kalgoorlie.—Book-keeping, electricity, elementary subjects, shorthand, dresscutting, and woodwork.

Boulder.—*See* under Technical Schools.

Private Schools.—At the close of the year 1899 there was a grand total of 83 private schools in Western Australia; and during 1900 these decreased to 75. A total of 77 were open at the end of 1901; at the end of 1902, 80; at the end of 1903, 92; and at the end of 1904, 93. They are all, with the exception of the Boys' High School, which is subsidised by the Government and under the supervision of a Board of Governors, self-supporting. Prior to 1895 a certain number of private schools received State aid, but by the Assisted Schools Abolition Act of that year the grant to private schools was discontinued, and a compensation was made to the schools that had so far received subsidy, the sum of £15,000 being divided among them in proportion to the grants received during the year 1895. Under the provisions of "The Public Education Act, 1899," the principals of private schools may apply to have their schools inspected and declared "efficient." Under this Act all private school principals are required to keep registers of attendance.

The undenominational schools in the years 1899, 1900, 1901, 1902, 1903, and 1904 numbered, respectively, 44, 33, 31, 33, 29, and 30; the male teachers, 15, 10, 11, 12, 9, and 12; the female teachers, 94, 69, 66, 69, 67, and 67; the scholars on the roll, 1,290, 1,055, 1,041, 1,116, 1,004, and 975.

The Anglican Church had, at the end of 1899, under its supervision and control, six private schools, under the charge of one male and 14 female teachers; the number of scholars on the roll was 182. At the end of 1900 there were four schools, with a staff of one male and six female teachers, and an enrolment of 67 scholars. At the end of 1901 there were six schools, with a staff of one male and 18 female teachers; the enrolment was 203. At the end of 1902 there were three schools, with a staff of 10 female teachers; the enrolment was 113. At the end of 1903 there were

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five schools, with a staff of 19 female teachers; the enrolment was 247. At the end of 1904 there were four schools in operation, with a staff of one male teacher and 14 female teachers, and the enrolment was 176.

Under the supervision of the Roman Catholic Church there were, at the close of 1899, 32 schools, with five male and 138 female teachers; the enrolment of scholars was 4,118. At the close of 1900 the number of schools was 37; of the staffs, 16 male and 142 female teachers, and of the scholars 4,233. At the close of 1901 there were 38 schools, with staffs aggregating 22 male and 157 female teachers, the enrolment being 4,473. At the close of 1902 there were 43 schools, with 25 male and 174 female teachers; the enrolment was 4,921. At the close of 1903 there were 56 schools, with 24 male and 223 female teachers, and the enrolment was 5,413. At the close of 1904 there were 57 schools, with 20 male and 233 female teachers, whilst the enrolment was 5,953.

The Presbyterian Church has a boys' school located at Claremont. At the end of 1899 there were four male teachers and 95 scholars. At the end of 1900 the number of teachers remained the same, but the enrolment had increased to 107. At the end of 1901 there were five teachers and 93 scholars; at the end of 1902, four teachers and 110 scholars; at the end of 1903 there were four teachers and 93 scholars, and at the end of 1904 there were four teachers and 80 scholars.

The Committee of Management of the Evangelical Lutheran Church opened a school in Perth at the beginning of 1904, and at the end of the year there were two teachers (one male and one female), and an enrolment of 30 scholars.

SECONDARY SCHOOLS.—The conditions governing scholarships, which formerly could be held at the Perth Boys' High School only, have been altered so that at the present time a successful competitor may select from among the schools approved by the Education Department the one which he wishes to attend.

The schools thus approved are, for the purposes of the Department, termed *Secondary Schools*. The following are the schools so classed at present, but they are only provisionally approved, and any may be omitted, or others added:—

Undenominational	... ...	Perth Boys' High School.
		Guildford Grammar School.
		The Perth High School for Girls.
Roman Catholic Church	...	Christian Brothers' College, Perth.
		Convent of Notre Dame des Missions, Highgate Hill.
Presbyterian Church	...	Scotch College, Claremont.

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The Perth High School is subsidised by the Government, out of the general revenue, by the grant of an annual sum of £1,000. It was established by statute in 1876. The Governors are a corporate body, and are empowered to hold lands, goods, and benefactions in trust for the school. They are six in number, and are appointed by the Governor in Council. They are endowed with power to make by-laws and regulations for the management of the school. The instruction is required to be exclusively secular, and the Head Master must be a graduate of a recognised University, but not a minister of religion. Provision is also made whereby the masters may be required to take in pupils as boarders upon certain terms. All accounts of the school are once a year audited by the Auditor General, and an annual report of the condition and prospects of the school is laid before Parliament. It received, during the fiscal year ended 30th June, 1900, a Government grant of £1,000, £1,083 in the year ended 30th June, 1901, and £1,000 in the following year. The subsidy in each of the years 1903 and 1904 also amounted to £1,000. Receipts from other sources during these respective years were £1,152, £1,156, £1,403, £1,614, and £1,434. Expenditure for same periods amounted to £2,170, £2,234, £2,326, £2,521, and £2,614. The number of regular teachers employed at the end of each year was five, and the enrolment numbered 75, 96, 96, 91, and 81 for 1900, 1901, 1902, 1903, and 1904 respectively.

The Guildford Grammar School is a private institution. At the end of 1900 there were 47 pupils in attendance; at the end of 1901, 50; at the end of 1902, 44; at the end of 1903, 57; and at the end of 1904, 62. The staffing for the years 1900-3 was three male teachers and one female teacher, and for 1904, four male teachers.

The High School for Girls is not connected with any church in particular. The number of pupils at the end of 1901 was 65, and the number of teachers, six; at the end of 1902 the number of teachers was the same, whilst the number of pupils had increased to 72. At the end of 1903 there were five teachers with an enrolment of 65 pupils, and at the end of 1904 there were five teachers and 57 pupils.

The Christian Brothers' College and the Notre Dame Convent are under the control of the Roman Catholic Church. The numbers of pupils and staffing were as follows:—Christian Brothers' College, at the close of 1900, 150 pupils, eight teachers; at the close of 1901, 149 pupils, eight teachers; at the close of 1902, 154 pupils, eight teachers; at the close of 1903, ten teachers and 139 pupils; and at the close of 1904, nine teachers and 176 pupils. Notre Dame Convent, at the close of 1900, two teachers, 30 pupils; at the close of 1901, three teachers, 59 pupils; at the close of 1902, three teachers, 80

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pupils; at the close of 1903, four teachers and 62 pupils; and at the close of 1904, four teachers and 80 pupils.

The Scotch College, at Claremont, is under the control of the Presbyterian Church. Its attendance and teaching staff have been referred to above.

2.—RELIGION.

Prior to 1895 certain denominations, which then embraced the greater portion of the population, and consequently were considered to be the most important in Western Australia, were entitled to an annual State grant. These were:—The Church of England; the Roman Catholic Church; the Wesleyan Church; the Presbyterian Church; and the Congregational Church. Only the first four, however, actually claimed and received such aid. The practice was abolished in 1895, when an Act was passed which provided for a sum of £35,430 being paid, in two instalments, in commutation of the previous annual ecclesiastical grant. These were paid, the one in 1895, the other in 1896; the amount allotted to each denomination being in proportion to its numerical strength at the 1891 Census. The total amount paid to the Church of England was £20,042; whilst the Roman Catholics received £10,086; the Wesleyans, £3,687; and the Presbyterians, £1,615.

Although not now a matter of importance in connection with the administration of public funds, a knowledge of the distribution of the population according to religious profession is of such great and general interest that it will always probably be considered one of the prominent features of every recurring Census.

The great increase of the population of Western Australia during the decade preceding the Census of 1901 caused an equally considerable increase in the number of sects recorded at the enumeration of the people. In the 1891 Census provision had to be made for 63 different heads under which to classify the population in this respect; the number at the 1901 Census had risen to more than 150. On both occasions, however, some of these heads were evidently of a purely fanciful nature, the result of a perverted and misplaced sense of humour.

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A comparison of the particulars for each of the two Censuses shows, it will be seen, a large increase in the numbers under every one of the clearly-defined heads.

Religion.	Census of 1891.		Census of 1901.		Males and Females.		Percentage of number under each head on total specified.		Number of Females to each 100 Males.	
	Males.	Females.	Males.	Females.	1891.	1901.	1891.	1901.	1891.	1901.
Christian—										
Church of England ...	14,548	10,220	45,027	30,627	24,768	75,654	50·35	40·02	70·25	68·02
Methodist	2,446	2,159	13,969	10,571	4,605	24,540	9·36	13·63	88·27	75·67
Presbyterian	1,286	711	9,252	5,455	1,997	14,707	4·06	8·17	55·29	58·96
Congregational ...	822	751	2,406	1,998	1,573	4,404	3·20	2·45	91·36	83·04
Baptist	170	113	1,625	1,289	283	2,914	0·57	1·62	66·47	79·32
Church of Christ ...	63	35	534	511	98	1,045	0·20	0·58	55·56	95·69
Salvation Army ...	4	...	971	719	4	1,690	0·01	0·94	...	74·05
Lutheran	195	21	1,401	302	216	1,703	0·44	0·95	10·77	21·56
Seventh-Day Adventist	2	...	101	110	2	211	...	0·12	...	108·91
Unitarian	29	10	116	34	39	150	0·08	0·08	34·48	29·31
Protestant (undefined)	155	95	1,206	641	250	1,847	0·51	1·02	61·29	53·15
Roman Catholic ...	7,122	5,343	24,623	15,961	12,465	40,584	25·34	22·54	75·02	64·82
Greek Catholic... ...	9	...	170	2	9	172	0·02	0·09	...	1·18
Catholic (undefined) ...	60	68	840	460	137	1,300	0·28	0·73	98·55	55·83
Other Christians ...	46	17	323	238	63	561	0·13	0·31	36·96	73·68
Non-Christian—										
Jew, Hebrew, Israelite	83	47	755	504	130	1,259	0·26	0·70	56·63	66·75
Mahomedan	421	6	1,176	15	427	1,191	0·87	0·66	1·43	1·28
Buddhist	1,030	50	656	105	1,080	761	2·20	0·42	4·85	16·01
Confucian	9		74	...	9	74	0·02	0·04	...	
Others	12	1	129	28	13	157	0·03	0·09	8·33	21·71
Indefinite—										
No Denomination ..	152	32	1,450	411	184	1,861	0·37	1·03	21·05	28·34
Freethinker	286	22	1,219	106	308	1,325	0·63	0·73	7·69	8·70
Agnostic	8	1	99	7	9	106	0·02	0·06	12·50	7·07
Others ..	9	1	95	50	10	145	0·02	0·08	11·11	52·63
No Religion										
Atheist	8	...	32	3	8	35	0·02	0·02	...	9·38
No Religion	197	13	1,100	266	210	1,366	0·43	0·76	6·60	24·18
Pagan	146	142	252	12	288	264	0·58	0·15	97·26	4·76
Others	1		7	3	1	10		0·01		42·86
Total specified	29,238	19,858	109,608	70,437	49,196	180,045	100·00	100·00	67·71	64·26
"Object to State"	379	99	2,429	624	478	3,053			26·12	25·69
Unspecified	100	18	838	189	118	1,026			18·00	22·43
Grand Total	29,717	19,975	112,875	71,240	49,792	184,124	..		67·21	63·12

It will be seen that the percentage of the number under each definite head has been calculated on the total persons whose denominations were distinctly specified. If it may be assumed that those unspecified, and those who objected to answer the religious question all came under the specified heads in similar proportion to those who distinctly stated their beliefs, the

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percentages may be safely taken to be those of each denomination to the total population. It is on this assumption that they are so referred to in the following paragraphs. In some denominations the percentage of the number of adherents, on the total of the persons whose religious convictions were specified, had considerably decreased; whilst a change in the opposite direction may be observed in others. The percentages, for instance, of Presbyterians and Methodists present the latter feature in a marked degree. There also was in many instances a striking change in the proportion between the numbers of males and females under the various heads of classification according to religion.

The adherents of the Church of England totalled 75,654, amounting to 42 per cent. of the total population, and being by far the largest number recorded for any one denomination. The males largely exceeded the females, outnumbering them in the proportion of 100 to 68: a proportion, however, somewhat less than that for the total population of the State, the figures for which were 100 males to 63 females.

The Roman Catholic Church, with a total of 40,584, occupied, from a numerical standpoint, second place amongst the religious denominations of the State, the percentage on the total population being about 22½; while, if to the Roman Catholics be added those persons returned simply as "Catholic," the majority of whom belonged presumably to the Roman Catholic Church, the total will be increased to 41,893, and the percentage to 23¼. In the cases both of Roman Catholics and Catholics (undefined), the number of females to each 100 males was small, being 65 in the former and 56 in the latter instance.

The total number professing adherence to the various sects of the Methodist Church was 24,540, or rather more than 13½ per cent. of the total population, the position of the Church, on the basis of numerical strength, being consequently third. The proportion of females amongst the Methodists was considerably higher than was the case with either the Church of England or the Roman Catholic Church, the number to each 100 males being about 76.

In point of numbers, the Presbyterian denomination ranks fourth, its adherents, 14,707, aggregating somewhat more than 8 per cent. of the total population. As regards sex distribution, the males preponderate here to a greater extent than in the case of any other of the larger denominations, there being only 59 females to each 100 males.

The fifth denomination, according to numerical rank, was the Congregational Church, with a following of 4,404, or slightly less than 2½ per cent. of the total population. The distribution of sexes in the case of adherents of this denomination shows a much closer approach to equality than in that of some of the others, there being 83 females to each 100 males.

Sixth in point of numbers comes the Baptist Church, with a record of 2,914, or somewhat more than 1½ per cent. of the total

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population. In this denomination the number of females to each 100 males was 79.

The next in order was the Lutheran Church, with a total of 1,703 adherents, followed closely by the Salvation Army, with 1,690, each of these denominations claiming somewhat less than one per cent. of the total population. The distributions of the sexes in them were, however, very dissimilar; for, while the Salvation Army showed 74 females to each 100 males, the Lutheran Church numbered less than 22 females to each 100 males. This is, no doubt, accounted for by the fact that the Lutheran Church is largely composed of foreign immigrants, most of whom are males.

With the exception of the two vaguely defined groups of "Protestant (undefined)" and "Indefinite," and that comprising persons of "No Religion," none of the groups in the table other than those already mentioned contained as many as ¾ per cent. of the total population—Jews, with a total of 1,259 (0·70 per cent.); Mahomedans, with 1,191 (0·66 per cent.); and Buddhists, with 761 (0·42 per cent.), being the most largely represented.

Two of the smaller Christian denominations are of special interest, as furnishing the only instances of near approach to equality in the distribution of the sexes. These are the Church of Christ, with a total of 1,045 adherents, and 96 females to each 100 males, and the Seventh Day Adventists, with a following of 211, and a record of 109 females to each 100 males—the sole exception to the otherwise invariable preponderance of males.

The failure to return themselves as adherents of some well-known denomination was more noticeable amongst males than amongst females, the greatest number of females to each 100 males in the case of any of the four groups, "Indefinite," "No Religion," "Object to state," and "Unspecified," being less than 26.

Of the 561 persons grouped as "Other Christians," those set down as "Brethren" (37); "Christadelphians" (52); "Christian Brethren" (37), and "Plymouth Brethren" (72), aggregated 198; while 71 were returned simply as "Christians," and 36 as adherents of the Catholic Apostolic Church.

Of those grouped under the head of "Indefinite," 1,861 were returned as of "No Denomination"; 1,325 as "Freethinkers"; 106 as "Agnostics," and 61 as "Spiritualists"; the remaining 84 being spread over no fewer than 29 different designations, many of them of a more or less fanciful nature.

The largest contributors to the "No Religion" group were those so returned on the Schedules, numbering 1,366 out of the total of 1,675 in this group. Persons to the number of 264, who were returned on the various schedules as "Pagan," have been classed with those of "No Religion," since it appeared that these terms were in

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many cases treated as being synonymous by those responsible for filling in the schedules. It is probable that the number in this group is somewhat overstated, since careful inquiry would doubtless, in some cases, have shown that persons returned by the householders as of "No Religion" had really some form of religious belief. As, however, the furnishing of a reply to the religious query on the schedules was optional, no steps were taken by the Census Office to have any information under this head referred back for correction, the particulars being tabulated as nearly as practicable as originally supplied. Included in this group are 35 persons who returned themselves as "Atheists," 32 being males, and 3 females.

Classified according to the four great territorial divisions, the particulars for the adherents of the principal denominations are here given in tabular form :—

Religion.	Metropolitan Division.		South-Western Division.		Central and Eastern Division.		Northern and North-Western Division.		Total.		
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Total.
Church of England	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	45,027	30,627	75,654
Methodist	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	13,969	10,571	24,540
Presbyterian	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	9,251	5,455	14,707
Congregational	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Baptist	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Church of Christ	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Salvation Army	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Lutheran	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Seventh Day Adventist	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Presbyterian (unclassified)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Roman Catholic	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Greek Catholic	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Catholic (unclassified)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Other Christians	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
New Christian	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Jew	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Mahomedan	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Buddhist	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Confucian	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Others	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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The four divisions referred to in the above table were arranged as follows :—The Metropolitan division, to include the Magisterial Districts of Perth and Fremantle; the South-Western, those of Blackwood, Collie, Katanning, Murray, Northam, Plantagenet, Sussex, Swan, Toodyay, Victoria, Wellington, Williams, and York; the Central and Eastern, those of Broad Arrow, Coolgardie, North Coolgardie, North-East Coolgardie, Dundas, Esperance, Mount Margaret, Murchison, East Murchison, Peak Hill, Phillips River, Yalgoo, and Yilgarn; and the Northern and North-Western, those of Ashburton, Broome, Gascoyne, East Kimberley, West Kimberley, Kimberley Goldfields, Pilbara, and Roebourne. Each of these divisions has its distinctive features. The Metropolitan division embraces the Capital City and its suburbs, as well as the principal Port; the South-Western is the chief agricultural and timber producing division; the Central and Eastern division is largely devoted to gold mining: while pearling and pastoral pursuits are those mostly engaging attention in the Northern and North-Western division. It must, of course, be understood that most of these distinctions are only roughly applicable, and that the principal industry of each division is in most cases represented to some extent in other divisions.

Of the twenty-four religious groups shown in our statement, twelve were more largely represented in the Metropolitan than in any of the other divisions, these being the Church of England, Presbyterians, Congregationalists, Baptists, Church of Christ, Unitarians, Protestants (undefined), Catholics (undefined), Other Christians, Others (Non-Christrian), and "Unspecified." Six of the groups, viz.: the Roman Catholics, Methodists, Salvation Army, Lutherans, Greek Catholics, "Indefinite," and "Object to State," preponderated in the Central and Eastern division, the first two of these being particularly numerous. In the North and North-Western division, Mahomedans, Buddhists, and "No Religion" were more strongly represented than in the other divisions.

It is of interest to note that in the case of the male adherents of the Church of England the numbers in the Metropolitan, the South-Western, and the Central and Eastern divisions were very nearly equal to one another.

A further point of interest is the fact that out of a total of 5,338 persons in the Northern and North-Western division, concerning whom particulars relative to religion were supplied, 1,057, or nearly 20 per cent., were adherents of Non-Christian religions, while 654, or rather more than 12 per cent., were returned as of "No Religion;" the former representing more than 30 per cent. of the total number of adherents of Non-Christian religions in the whole State, and the latter 39 per cent. of the "No Religion" total.

At the beginning of the year 1904, the number of churches and buildings used for divine worship, and the number of ministers for

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each of the principal denominations represented in Western Australia, were as follows:—

	Denomination.	Total number of Churches and Buildings used for Divine Worship.	Number of Ministers, Clergymen, etc.	Number of Lay Readers, Local Preachers, etc.
Christian.	(a) Anglican Church	234	56	106
	Roman Catholic Church	205	70	[illegible]
	Methodist Church	179	35	148
	Presbyterian Church	40	17	16
	Congregational Church	44	20	37
	Baptist Union	43	17	80
	Baptist Association of W.A. ...	3	1	7
	(b) Associated Churches of Christ	10	7	27
	Seventh Day Adventists	14	3	17
	Salvation Army	34	64	120
	German Evangelical Lutheran Church	8	2	3
	Total Christian	814	292	[illegible]
Other.	Hebrew Congregation	6	2	[illegible]
	Mahomedans	14	1	[illegible]
	Grand Total ...	[illegible]	[illegible]	[illegible]

[illegible]

Clergymen Represented in Conference Meetings

Denomination.	Number of Churches and Buildings used for Divine Worship.	Number of Ministers, Clergymen, etc.	[illegible]
Church of England	[illegible]	[illegible]	[illegible]
Roman Catholic	[illegible]	[illegible]	[illegible]
Methodist	[illegible]	[illegible]	[illegible]
Presbyterian	[illegible]	[illegible]	[illegible]
Congregational ...	[illegible]	[illegible]	[illegible]
Salvation Army	[illegible]	[illegible]	[illegible]
Baptist Union	[illegible]	[illegible]	[illegible]
Baptist Association		[illegible]	[illegible]
Church of Christ ...	[illegible]	[illegible]	[illegible]
Seventh Day Adventist		[illegible]	[illegible]
Lutheran		[illegible]	[illegible]
Hebrew		[illegible]	[illegible]
Mahomedan		[illegible]	[illegible]
Total ...	[illegible]	[illegible]	[illegible]

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The Catholic Church.

(*Church of England.*)

The Diocese, until 1904, comprised the entire State of Western Australia, but a new diocese has now been created, which is called the Bunbury Diocese, and forms a unit of the prospective ultimate subdivision of the North Diocese of Perth into the following four dioceses:—

1.—Missionary Diocese of the North.
2.—Diocese of Perth.
3.—Diocese of Kalgoorlie.
4.—Bunbury Diocese.

The Diocese of Perth (founded, 1856) is limited by the boundaries of the State of Western Australia, except on the south-west, where it is bounded by 32° 22′ 30″ of south latitude, from the sea coast to the 121st meridian of east longitude; thence south by the said meridian to the sea. In area the Diocese embraces 930,000 square miles, 420,000 square miles of which are comprised in the north-west. Its scattered population numbers about 214,200 persons, about 7,600 of whom reside in the north-west. Western Australia formed part of the diocese of Australia from 1836 to 1847, and from 1847 to 1856 it was in the Diocese of Adelaide.

Synodical action was inaugurated in Western Australia in 1872. The Synod is constituted of the Bishop as president (whose assent is required to every statute to give it validity), of each licensed clergyman, and two lay communicants for every clergyman. All church property is vested in a Trust Corporation, incorporated for property purposes only, by an Act of the Legislature. The government of the Church is based upon consensual compact, all clergymen and lay officers signing an agreement to be bound by the Statutes of Synod; the Church is wholly free from Parliamentary control.

The patronage of a few parishes, subject to the Bishop's confirmation, is vested in a Board of Nominators—two (Diocesan) appointed by the Synod, and three (Parochial) elected by the Parish Vestry. In all cases in which parochial nominators cannot be—or have not been—elected, the appointment lies with the Bishop.

The Diocese of Bunbury (founded, 1904) was formed out of the Diocese of Perth, and is limited by the following boundaries:—On the south and west by the sea coast; on the north and east respectively by 32° 22′ 30″ of south latitude from the sea coast east to the 121st meridian of east longitude; thence south by the said meridian to the sea coast. It was part of the Diocese of Australia from 1836 to 1847; of Adelaide from 1847 to 1856; and of Perth from 1856 to 1904. The area of the Diocese is 46,000 square miles.

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Statistical Information.

(Dioceses of Perth and Bunbury.)

It is stated by the Church Authorities that there were 86 Churches throughout the State on the 30th April, 1904, besides 143 other buildings used for Divine Worship.

The Clergy numbered 63 (49 Perth, 14 Bunbury). During the year ended 30th April, 1904, there were 2,059 baptisms, 637 confirmations, 680 marriages, and 34,998 communicants. Sunday School Teachers numbered 582, and scholars 6,880. There are schools connected with the Church at Perth and Kalgoorlie.

Revenue (for year ended 30th June, 1904.)—Collections, £8,285 16s. 11d., otherwise raised £11,162 16s. 1d., Interest General Sustentation Fund, £1,520, Grant from the Society for the Propagation of the Gospel, £1,116 1s. 7d., Colonial and Continental Church Society, £200, Local Endowment, not including self-supporting parishes, £326 14s. 3d.

Church Institutions.

Perth Orphanage—Girls' Branch at Perth, Boys' Branch at the Swan, Native and Half-Caste Mission and Redhill Industrial School, both at the Swan. Home for Waifs and Strays at Parkerville. St. George's Girls' Lodge, Perth. St. John's Lodge, Kalgoorlie. Homes for ladies at business or profession at work. Clergy College, Perth. Perth College. Kalgoorlie High School.

Roman Catholic Church.

(Province of Adelaide.)

Diocese of Perth.—This diocese comprises all that part of the State of Western Australia South of a line coinciding with 31° 20′ of South latitude. The mission started in 1843 with the arrival of two priests sent by the first Bishop of Sydney.

Districts.—The diocese is divided into the districts of Perth, West Perth, Highgate Hill (N. Perth), South Perth, Albany, Boulder City, Bridgetown, Greenbushes and Donnybrook, Bunbury, Busselton, Claremont and Cottesloe, Collie, Coolgardie, Fremantle, Glendalough, Guildford, Jarrahdale, Kalgoorlie, Kanowna, Katanning, Menzies, Newcastle, Norseman, Northam, Paddington, Subiaco, York.

Abbey Nullius of New Norcia.—Founded 1st March, 1846, by two Spanish Benedictine Monks, Rev. Fathers Joseph Serra and Rosendo Salvado. The mission is located about 82 miles North of Perth, 15 miles from Mogumber, a station on the Midland Railway. The territory comprises 16 square miles in area and immediately surrounds the abbey.

General Information.—There are 27 convent schools for girls and infants, located at Albany, Boulder, Bunbury, Collie, Coolgardie, Fremantle, Geraldton, Guildford, Kalgoorlie, Leederville, Menzies, Newcastle, Northam, North Perth, Perth, Subiaco,

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West Perth, and York. There is one boys' school at Fremantle, one at Perth, and also a college under the control of the Christian Brothers. At the end of 1904 there were in this State 50 churches and 110 other buildings used by this denomination as places of public worship, under the charge of 44 clergymen.

DIOCESE OF GERALDTON.

(Established in 1898.)

The diocese includes all that portion of the State North of parallel 28 South latitude, including the districts of Geraldton, Greenough, Cue, Roebourne, Cossack, Derby, Wyndham, etc.

VICARIATE APOSTOLIC OF KIMBERLEY.

Erected into a separate vicariate in 1887, this district is temporarily under the jurisdiction of the Bishop of Geraldton. A mission for aborigines was established at Beagle Bay in 1890 by two Trappist Fathers. At present the permanent staff consists of three priests, ten brothers, one schoolmaster, and one boat-skipper.

The Methodist Church of Australasia.

The Methodist Church in Western Australia consists of a Union formed in 1902, of the Wesleyan Primitive Methodist, and Bible Christian Churches.

Statistics.—Church members, 3,109; churches, 74; sittings in churches, 14,508; Sunday-school scholars, 8,116; officers and teachers, 825; ministers, 40; local preachers, 154; Total number of adherents, about 25,000.

Presbyterian Church in Western Australia.

The first Presbyterian Church in the State was established in Perth in 1879. In 1892 the churches, four in number, were formed into a Presbytery of the Presbyterian Church of Victoria. In 1901 the Church became autonomous, the first general Assembly meeting in April of that year.

Presbyteries.—Under the General Assembly there are three Presbyteries. The Perth Presbytery comprises seven charges and one preaching station. The Fremantle Presbytery comprises five charges and four preaching stations. The Eastern Goldfields Presbytery comprises five charges and four preaching stations.

Home Mission Districts.—There are five districts worked under the Home Mission scheme:—Great Southern line, South-Western line, Avon Valley, Geraldton and Murchison districts, and Eastern goldfields. Each district is placed under a superintendent.

Statistics.—There are 12 ordained ministers and five Mission Agents; the number of Sabbath-schools is 30; the communicants on the roll number 1,180, and the adherents on the roll, 2,200. The revenue for 1903 was £6,900.

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3.—INDUSTRIAL LEGISLATION.

(By Edgar T. Owen, F.S.S., Under Secretary for Labour, Registrar of Friendly Societies, and Government Actuary.)

The following is a list of Statutes in force in this State which relate to industrial matters. (Those preceded by an asterisk are administered by the Minister for Labour.)

Associations Incorporation Act, 1895
Benefit Building Societies Act, 1863
Breach of Contracts about Fisheries Act, 1847
Chinese Immigration Restriction Act, 1889
Coal Mines Regulation Act, 1902
*Conspiracy and Protection of Property Act, 1900
*Co-operative and Provident Societies Act, 1903
*Early Closing Acts 1902, 1904, and 1904 (No. 2)
Employers' Liability Act, 1894
*Employment Brokers Act, 1897
*Factories Acts, 1904, and Amendment, 1904
Fisheries Act, 1899
*Friendly Societies Acts, 1894 and 1904
Goldfields Act, 1895, etc.
Hawkers and Pedlars Act, 1892
Immigration Restriction Act, 1897
Imported Labour Registry Act, 1897
*Industrial Conciliation and Arbitration Act, 1902
*Masters and Apprentices Act, 1873
Masters and Servants Act, 1892
Mines Regulation Acts, 1895 and 1899
Mining Development Act, 1902
Mining on Private Property Act, 1898
Pearl Shell Fishery Regulation Act, 1875, etc.
*Public Institutions and Friendly Societies Lands Improvement Acts, 1892 and 1893
*Seats for Shop Assistants Act, 1899
Steam Boilers Act, 1897
Sunday Labour in Mines Act, 1899
*Trade Unions Act, 1902
*Truck Acts, 1899, 1900, and 1904
*Workers' Compensation Act, 1902
*Workmen's Wages Act, 1898

The Industrial Conciliation and Arbitration Act.

The first Statute under the above name came into force on the 5th December, 1900, and on the 19th February, 1902, was replaced by the present Act, "The Industrial Conciliation and Arbitration Act, 1902." The purpose of the Statute is to facilitate the settlement of industrial disputes by Conciliation and Arbitration. It provides for the registration of Unions of Workers, consisting of not less than 15 members each, and for the registration of Unions of Employers consisting of not less than two members each, having in their employ taken together at least 50 workers. Any incorporated company may also be registered as an employers' union.

A registered union, whether of workers or employers, is termed an "Industrial Union," and a number of industrial unions grouped and affiliated together is termed an "Industrial Association."

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Every industrial union must be confined to some one specified industry, and must adopt such rules as are in full compliance with the Act. There must not be more than one Industrial Union of Workers and one Industrial Union of Employers in a locality in the one industry. This does not apply strictly to companies which become industrial unions. In the event of an industrial dispute occurring between an employer and his employees, the Act provides that, unless amicably settled, it shall be referred to the Court of Arbitration, or to a Board of Conciliation created under the Act, for settlement.

The parties who may refer disputes to the Court or a Board are:—

(*a.*) An industrial Union of Workers.
(*b.*) „ „ Association of Workers.
(*c.*) „ „ Union of Employers.
(*d.*) „ „ Association of Employers.
(*e.*) An employer.

An individual worker, or a body of workers not comprised in an industrial union, is not empowered to refer a dispute for settlement under the Act.

The Court of Arbitration, on the results of whose labours depends in a large measure the success of the Act, has jurisdiction over the whole State. It consists of three members, namely, a president, who must be a Judge of the Supreme Court, and two representatives, nominated respectively by the industrial unions of employers and workers. The representatives hold office for three years, and are eligible for re-election.

For the purposes of the Act, the State is divided into three industrial districts. Each district is provided with a Board of Conciliation of three persons (the Act allows three, five, or seven), consisting of two representatives elected respectively by the Industrial Unions of Employers and Workers within the district, and a Chairman, elected by the representatives. Each member holds office for three years, and is eligible for re-election. Besides the permanent Boards, special Boards of Conciliators may be elected from time to time by the parties to a dispute, to deal with cases of a special character. The recommendations of the Boards and awards of the Court are directed by the Act to be drawn up in plain terms, avoiding technicalities as far as possible. It is further provided that "the Court shall, in all matters before it, have full and exclusive jurisdiction to determine the same in such manner in all respects as in equity and good conscience it thinks fit." As the parties in a large majority of cases prefer to go direct to the Court, the Boards of Conciliation have fallen into disuse.

The recommendation of a Board is binding only on the parties thereto, and is subject to an appeal therefrom within one month to the Court; an award of the Court is compulsory, and there is no

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appeal from its decision. The awards of the Court bind not only the parties to the dispute, but also all persons, whether employers or workers, within the area determined in the award, who are engaged in the industry to which the award relates. The Court's awards have thus a much larger scope than the recommendations of a Board. Matters in dispute which are amicably settled without reference to the Court or a Board may be made the subject of an industrial agreement between the parties. An industrial agreement, upon being registered, is binding upon each party thereto during its currency, and thereafter until the party duly retires therefrom.

The Statute, having provided a ready means for the settlement of industrial disputes, enacts that it shall be an offence, punishable by a penalty not exceeding £50, for any person, whether a member of an industrial union or not, to take part in, aid, instigate, or do anything in the nature of a strike or lock-out.

Every Industrial Union is required to furnish the Registrar of Friendly Societies with an annual statement of its receipts, expenditure, assets and liabilities, and a half-yearly list of the names of its officers and members.

The Registrar of Friendly Societies who, under the Minister for Labour, administers the Act, furnishes for Parliament an annual report, wherein the working of the Act and the condition of the Industrial Unions during the year are duly set forth. The proceedings of the Court, together with the full text of all Awards, Orders, and Decisions, and Industrial Agreements, are published in half-yearly volumes for the guidance and information of the unions and of persons having business with the Court.

Nearly all matters under the Act are free of official charge.

Not only is registration of unions and rules under the Act free, but the parties to a dispute are put to no expense when availing themselves of the services of the Boards and Court, other than the nominal fee of 2s. 6d. upon filing reference and 2s. 6d. on issue of summons, and their own witnesses' expenses. Further, the employment of a shorthand writer to the Court is provided for, the cost thereof being borne by the State.

The following is a statement of the fees to members of the Court and Boards, together with costs of travelling expenses, postages, etc., paid by the Crown during the four years, from the commencement of the 1900 Act, December, 1900, to 31st December, 1904:

	£
Fees to Members of Court	[illegible]
In[illegible] Boards	[illegible]
Travelling Expenses Court and Boards	421
Shorthand reporting	1,[illegible]
Postages, Printing, advertising, etc.	[illegible]
Total	[illegible]

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The following table presents a summary of the number of industrial unions, etc., registered, together with the total membership and capital of such unions:—

Industrial Unions, etc., registered during the four years ended 31st December, 1904.

Number of—	Employers.	Workers.
Industrial Unions registered	48	160
Do do cancelled	3	28
Do do in force on 31st December, 1904	45	132
Industrial Associations registered ...	...	6
Trades and Labour Councils registered ...	...	2
Total number of members in above bodies on 31st December, 1904	441	15,743
Total Capital at same date	£99	£22,279

The number of industrial disputes which have been referred to the three Boards and the Court during the four years ended 31st December, 1904, and the number of industrial agreements filed during the same period, are as follows:—

Number of Industrial Disputes referred to.	1901.	1902.	1903.	1904.	Total.
Court of Arbitration, Determined ...	...	34	75	49	158
Do do Pending	...	...	...	7	7
Board of Conciliation for the:—					
South-West Industrial District ...	4	8	9	...	21
Eastern Industrial District ...	...	2	2	...	4
Western Industrial District ...	...	...	...	...	...
Special Board of Conciliators, Cue ...	...	1	...	...	1
Total	4	45	86	56	191
Industrial Agreements filed ...	2	5	4	10	21

The disputes enumerated above, which were brought chiefly by industrial unions of workers, relate to demands for increased wages, adjustment of anomalies in wages sheet, improved conditions of employment, shorter hours of labour, the enforcement of industrial agreements, and the enforcement of awards and orders of the Court.

Masters and Apprentices Act, 1873.

This Act was passed in 1873 to remove doubts as to whether it was legal for persons under age to bind themselves as apprentices to master workmen.

The Act simply adopts all the laws in force in England on 1st January, 1873, with regard to apprentices and apprenticeship, in so far as such laws are applicable to the circumstances of this State.

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Trade Unions Act.

This Act was passed on the 19th February, 1902, and closely resembles the Trade Unions Act of England. It provides for the legal recognition of combinations of employers and workmen which come under the designation of trade unions, the registration of trade unions of seven or more persons, the registration of councils or other bodies, to which are affiliated two or more registered trade unions, the vesting of property of trade unions in trustees, and the registration of such trustees.

Every registered trade union is required to furnish the Registrar of Friendly Societies with an annual statement of its affairs, a summary of which, together with a report on the working of the Act, is annually presented to Parliament. The number of registered trade unions, and of the members and funds therein, are as follows:—

Number on 31st December, 1904, of registered trade unions	79
Members therein	11,070
Total funds therein	£17,982

It may be noted that nearly all these trade unions, with their members and funds, are included in the statistics of industrial unions under the Industrial Conciliation and Arbitration Act, described above.

Conspiracy and Protection of Property Act.

This Act enacts that:—

An agreement or combination by two or more persons to do, or procure to be done, any act (which is not punishable as a crime) in contemplation or furtherance of a *trade dispute* between employers and workmen, shall *not* be indictable as a *conspiracy*.

When a municipal authority, company, contractor, or person supplies to a community electric light, gas, or water, an employee thereof shall not discontinue his employment without giving seven days' previous notice; in default, he shall be liable to a penalty of not exceeding £10.

A printed notice embodying the last-named provision must be posted up in a conspicuous place where it may be seen by the employees.

Any breach of contract of service which involves probable injury to persons or property without giving seven days' notice, renders the person so guilty liable to a penalty of not exceeding £10.

A master is bound to provide necessary food, clothing, etc., to his servant or apprentice, where a neglect so to do would endanger the health of such servant or apprentice.

Any person who, by intimidation, violence, persistent following, watching, or besetting, hiding of tools, clothes, or property, compels any other person to do

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anything, or prevents him from doing anything which he has a legal right to do, is liable to a penalty for such offence.

Workmen's Wages Act.

This Act provides—

That wages to a workman engaged in manual labour shall be paid weekly, unless there is a written agreement to the contrary.

That the wages of any workman employed by a contractor shall be a first charge on any moneys due to the contractor.

That any workman employed by a contractor whose wages remain unpaid for three days, after having become due and demanded, may take legal steps to attach any moneys then in the hands of the contractor's employer and due to the contractor.

That all legal demands of workmen in regard to moneys so attached shall be paid in order of priority of attachment; all attachments lodged simultaneously to be paid *pro rata.*

The penalty for a breach of the Act is a fine not exceeding £25, or, in default, one month's imprisonment.

Truck Act.

The object of this Act is to ensure the payment to an employee of his wages in money or by open cheque, and in full without any deduction for goods, etc., supplied.

An employer is prohibited from making any deduction from the wages of his employee (unless in case of necessity or other sufficient reason), and is also prohibited from stipulating with or directing his employees as to the mode in which they shall spend their wages.

It is made an offence, punishable by a fine of from £10 to £50, for any employer, or for his agent, to commit a breach of the Act.

The person to take legal proceedings for the recovery of any wages unpaid in money is the employee concerned.

Workers' Compensation Act, 1902.

This Act, which is framed on the lines of the Imperial Workmen's Compensation Act of 1897, extends the liability of employers under common law, and under "The Employers' Liability Act, 1894," to make compensation for personal injuries suffered by workmen while in their employ.

It makes provision for the payment by the employer in certain trades or industries of a hazardous nature of monetary compensation to his employee should the latter meet with an accident, in the course of his employment, which disables him for more than two weeks, or causes his death.

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The Act casts upon the employer the obligation to pay compensation on a fixed scale for personal injuries, which may not be the result of any unlawful act either on his part or that of his employees. The only exception being that he is not liable if the injury is the result of serious and wilful misconduct on the part of the person injured.

The scale of compensation provided in the Act is as follows:—

(a.) If the injury renders the employee totally or partially incapable of work, a payment of a weekly sum, not exceeding 50 per cent. of the workers' average earnings, the maximum sum being £2 per week, and not more than £300 in the aggregate, to any one person. No payment is made for the first two weeks' disablement.

(b.) In case of the death of an employee who leaves dependants, a payment of a sum equal to three years' earnings, not to exceed £400.

(c.) In case of the death of a worker who leaves no dependants, a payment of a sum equal to the cost of the medical expenses and funeral, but not exceeding £100.

In the event of any question arising as to compensation claims, ıeans are provided for the appointment of two assessors to sit with magistrate to settle the matter. In such case the assessors are ected by the parties, one on each side.

The employers in the trades or industries affected, as a easure of precaution, in many instances, take out accident surance policies indemnifying them against the liability imposed the Act.

Contracting out of the Act is only allowed where a scheme has en formulated between an employer and his employees, and has en certified by the Registrar of Friendly Societies, to confer upon employees benefits not less favourable than those provided by Act.

Early Closing Act.

The purpose of this Act is to regulate the hours of employment shops and other places of business. It can be made applicable proclamation to any district or town throughout the State.

The Act regulates the opening and closing time and the king hours in shops and small shops, in the manner set forth in table below.

A small shop, in order to enjoy the benefit of the extension of rs stated in the table, Class C, must be one which does not ng to any of the Classes B, D, E, F, G, or H, and wherein (*a*) shopkeeper employs no assistant, or (*b*) the shopkeeper employs assistant only, that assistant being the husband, wife, child, dchild, sister, niece, grandparent, or parent of the shopkeeper, wherein (*c*.) neither the shopkeeper nor the assistant is a on of the Asiatic, African, or Polynesian race.

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Opening and closing time and working hours in Shops.

Class of Shop.	Description.	Closing Time.				Working Hours (exclusive of meals) for Employees in Shops.		Opening Time.
		Monday, Tuesday, Thursday, and Friday.	Wednesday (1).	Saturday.	Day preceding Christmas Day, New Year's Day, and Good Friday.	Young Persons under 16 and Women: per week.	Other Employees: per week.	
A	Shops not included in the Classes B to H below	6 p.m.	1 p.m. (2)	10 p.m. (2)	10 p.m.	52 hours (5)	56 hours (5)	8 a.m.
B	Hairdressers	6·30 p.m.	1 p.m.	10 p.m.	10 p.m.	52 hours	56 hours	Not specified
C	Small shops	8 p.m.	1 p.m. (2)	10 p.m. (2)	10 p.m.	... ...	... ...	7 a.m.
D	Butchers, Bakers, Newsagents, Stationers, and Booksellers, Railway Bookstalls, Florists	9 p.m. (3)	9 p.m. (3)	11 p.m.	11 p.m.	52 hours	56 hours	Not specified
E	Vegetable Shops, Milk Shops, Dairy Produce Shops, Tobacconists	10 p.m. (3)	10 p.m. (3)	11 p.m.	11 p.m.	52 hours	56 hours	Not specified
F	Fruit Shops, Confectioners	11 p.m.	11 p.m.	11 p.m.	11 p.m.	52 hours	56 hours	Not specified
G	Chemists and Druggists, Undertakers, Newspaper Offices	Not specified	Not specified	Not specified	Not specified	52 hours (3)	56 hours (3)	Not specified
H	Restaurants, Coffee Palaces, Refreshment Shops, Cooked Meat Shops, Fish and Oyster Shops, Public Houses, and Hotels	Not specified	Not specified	Not specified	Not specified	52 hours (4)	56 hours (4)	Not specified

(1.) When the shop is closed during the whole of another day in same week, the usual half-holiday need not be observed. (2.) The times of closing on Wednesday and Saturday may be exchanged in these classes of shops, subject to the limitations provided in the Act. (3.) All shop assistants in these shops, and in wholesale or commission agents' places of business, must have a half-holiday in every week from 1:30 p.m. (4.) All shop assistants in these shops must have a half holiday in every week from 2:30 p.m. (5.) Employees not to be kept employed more than one half hour after closing time, except on 12 days per half-year, when three hours per day shall be the maximum.

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Inspectors appointed under this Act may at any time enter any shop or place used as a shop and make all necessary inquiries to ascertain that the Act is being carried out. Every shop is required to keep in a place visible to the shop assistants a notice showing the name of the shopkeeper, time of closing of shop, hours during which assistants are employed, etc. The penalty for any breach of the Act is a fine of from £5 to £50. Proceedings may be taken by an Inspector, a police constable, or a shop assistant.

Where two or more businesses are carried on in the one shop having different closing times, the shopkeeper, if he desires to keep the one part open later, in accordance with the Act, must erect at the earliest closing time a substantial partition between the said businesses.

Seats for Shop Assistants Act.

This Act is framed in the interests of female shop assistants, and requires in all rooms where female assistants are employed that the shopkeeper shall provide, behind the counter, seats for their use.

There must be not less than one seat to every three female assistants in each room.

Factories Act, 1904.

This Statute came into operation on the 1st July, 1904. Its object is to provide for the registration, regular inspection, and control of all factories.

A factory, under the Act, includes, with certain limitations:—(a.) any building or place where six or more persons are employed or engaged in any handicraft, or in preparing or manufacturing articles for any trade or for sale; (b.) a laundry; (c.) any building or place where one or more persons of the Chinese or other Asiatic race are engaged in either (a.) or (b.); and (d.) any building where steam or other mechanical power or appliance is used.

All factories situated within declared districts are required to apply for registration. Before registration is granted, the premises must be passed by an Inspector under the Act, who must satisfy himself that they are suitable for the purpose intended, healthy, and in other respects in compliance with the Act. An Inspector is empowered to enter a factory, and any place deemed to be a factory any time when work is being carried on, to examine the same, and to ascertain whether the Act is being complied with.

The Act limits the working hours of women and boys in any factory to 48 hours per week, excluding meal time. A similar restriction is placed upon persons of the Asiatic race.

Boys and girls under 14 years are not allowed to be employed in a factory without the Inspector's written permission.

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The following matters are insisted upon in every factory:—

(*a.*) Reasonable cleanlinesss.

(*b.*) Absence of over-crowding.

(*c.*) Adequate means for securing and maintaining a reasonable temperature.

(*d.*) Efficient ventilation.

(*e.*) Efficient appliances to carry off noxious gases, fumes, etc.

(*f.*) A sufficient cubic or superficial space, not to be less than 350 cubic feet, for each employee.

(*g.*) An adequate supply of fresh drinking water free of charge.

(*h.*) The removal of any employee whose state of health is deemed injurious to the article of human consumption being manufactured or prepared.

(*i.*) Adequate means to be taken to prevent spread of infectious diseases.

(*j.*) Adequate safeguards to be erected where machinery is employed, with belting, etc.; and at the opening of every hoist way, elevator, lift, well-hole, and stairway.

(*k.*) Efficient fire-escapes to be provided.

(*l.*) Sufficient and separate latrines for each sex.

Where work is given out to be done elsewhere than in a factory, complete records must be kept and efficient supervision exercised, in order to guard against the "sweating evil." With regard to bake-houses, cleanliness within and around is prescribed, sufficient ventilation, and a provision that no person shall sleep in any room not completely separated from a bake-house by partition from floor to ceiling.

Goods (cabinet-making and furniture) which are manufactured wholly or partly by Asiatics, must be stamped with the words "Asiatic Labour."

Severe penalties are provided for breaches of the Act.

Employment Brokers' Act.

The purpose of this Act is to control persons who for a fee or reward act as agents for procuring employment for persons out of work and finding employees for masters in need of labour. Such agents are termed employment brokers.

Every employment broker is required to be licensed before he can carry on his business. An unlicensed person engaging in the business is liable to a penalty of £20. The license fee is £5 per annum.

A license may be withheld or withdrawn:—

(*a.*) If the applicant is deemed not to be a fit and proper person to be licensed.

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(*b.*) If the applicant has in his business practised fraud, imposition, extortion, immoral conduct, or failed to observe this Act.

Every licensee is required to keep a register of applicants for work, applicants for workers, and fees received or collected, also application and engagement books, in prescribed form, showing details of every transaction. Such books to be open for inspection by persons authorised under the Act.

The issue of untrue notices, placards, or advertisements relating to employments, vacancies, etc., is prohibited under penalty.

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k.—FRIENDLY SOCIETIES, BUILDING SOCIETIES, AND CO-OPERATIVE SOCIETIES.

Supplied by Edgar T. Owen, F.S.S., Under Secretary for Labour, Registrar of Friendly Societies, and Government Actuary.)

Friendly Societies.

Friendly Societies are, in their nature, altogether distinct from haritable Institutions, and are not subsidised by the State other han by occasional grants of land on which to erect meeting halls.

The Friendly Societies established in Western Australia comrise branches of all the leading orders or associations. The branches, dges, tents, courts, and divisions (as they are variously termed) e grouped into districts or grand lodges, having a central body tuated in Perth, Fremantle, or Kalgoorlie. Each society has a stinctive name and a separate code of laws providing for the stitution and management of the branches, the conduct of the etings, the conditions of membership, the scales of entrance fees, ntributions, and benefits, the penalties for breaches of rules, etc. e Friendly Societies Act, 1894, provides for the registration of ieties and branches, which afford, in return for the subscriptions d levies paid by the members, benefits of the following nature:—

(*a.*) Assuring to a member when incapacitated through sickness from following his ordinary occupation a weekly allowance (not exceeding 40s a week from any two or more branches or societies).

(*b.*) Providing medical attendance and medicine for a member and his family during sickness.

(*c.*) Assuring the payment of a funeral allowance on the death of a member and his wife.

(*d.*) The relief or maintenance of a member in distressed circumstances.

eties having other approved objects of mutual benefit and ntange to the members may be registered as "specially iorised societies."

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The Act gives Friendly Societies a legal standing. It provides for the protection of their funds and the periodical investigation of their affairs; their scales of contribution must be approved by the Registrar of Friendly Societies, and their rules must be in strict conformity with the Act.

The several societies registered under the Act at the end of 1903, together with the number of branches and members, and the amount of their funds, are set forth in the following table:—

Registered Friendly Societies at the end of 1903.

Society.	Year when Established.	No. of Registered Branches.	No. of Benefit Members.	Amount of Funds.
Manchester Unity Independent Order of Oddfellows—				£
Western Australian District ...	1851	7	699	16,127
Central Goldfields District ...	1900	6	549	1,734
Murchison District	1900	2	113	454
Albany District	1901	2	190	2,337
Total of M.U.I.O.O.F. ...	...	17	1,551	21,252
Independent Order of Rechabites (W.A. District)	1872	12	799	8,[illegible]
Hibernian Australasian Catholic Benefit Society (W.A. District)	1878	17	813	4,062
Order of Sons of Temperance Friendly Society G.D. of W.A.	1878	10	405	1,079
Independent Order of Oddfellows	1889	44	2,206	5,436
Ancient Order of Foresters (W.A. District)	1891	12	1,110	5,508
Ancient Order of Foresters (Goldfields District)	1902	9	743	1,1[illegible]
United Ancient Order of Druids	1891	28	2,406	9,897
Protestant Alliance Friendly Society of Australasia G.C. of W.A.	1892	8	397	2,785
Irish National Foresters' Benefit Society S.E.C. of W.A.	1893	4	229	1,043
Grand United Order of Oddfellows	1895	8	340	1,147
Australian Natives Association ...	1896	19	1,247	5,769
Grand United Order of Free Gardeners, W.A.	1897	8	377	1,314
Total, 16 Societies ...	...	196	12,623	6[illegible]

There were in the above-named societies, in 1903, 99[illegible] honorary members.

The value of the benefits given during the year 1903 was:—

	£
Sick pay	4,935
Funeral money	1,114
Medical attendance and medicine ...	11,328
Total	£17,377

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In addition to the Friendly Societies proper, contained in the above table, the following bodies are registered as specially authorised societies :—

Society.	Year when Established.	Amount of Funds, 31st Dec., 1903.
		£
City Band of Hope and Temperance League ...	1874	2,014
Kalgoorlie Caledonian Society	1896	904
Gwalia Medical Fund	1899	269
Friendly Societies' Association of Kalgoorlie ...	1900	1,092
United Friendly Societies of Boulder	1900	1,457
Boulder United Friendly Societies' Medical Institute and Dispensary	1900	262
Perth United Friendly Societies' Dispensary and Medical Institute	1900	171
Boulder City Caledonian Society	1900	293
United Friendly Societies' Union of Coolgardie	1900	285
Friendly Societies' Council of W.A.	1901	...
Swan District Friendly Societies' Association ...	1902	13
Fremantle Friendly Society Medical Association	1903	114
Total of specially authorised Societies ...	...	£6,874

Building Societies.

Building Societies are established in Western Australia under the Ordinance for the Regulation of Benefit Building Societies, 1863 (27 Vict., No. 7), and are regulated by it and the Friendly Societies Ordinance (27 Vict., No. 6), which is retained in force for that purpose. The following is a list of the Building Societies the Rules of which have been duly confirmed :—

Name of Society.	Year when Established.	Where situated.
Perth Benefit Building, Investment, and Loan Society, Permanent	1862	Perth
Fremantle Benefit Building and Investment Society	1875	Fremantle
Bunbury Benefit Building, Investment, and Loan Society, Permanent	1882	Bunbury
Northam Mutual Benefit Building, Investment, and Loan Society, Permanent	1889	Northam
*Albany Benefit Building, Investment, and Loan Society, Permanent	1889	Albany
*Geraldton Benefit Building, Investment, and Loan Society, Permanent	1890	Geraldton
*Western Starr-Bowkett Building Society ...	1891	Perth
Swan District Benefit Building, Investment, and Loan Society, Permanent	1895	Guildford
Perth Co-operative Starr-Bowkett Society, No. 1 ...	1898	Perth
Commonwealth Land, Building, and Investment Society	1902	Fremantle
Metropolitan Starr-Bowkett Society, No. 2 ...	1902	Perth
United Starr-Bowkett Society, No. 3	1905	Perth

* Being wound up.

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Co-operative Societies.

The Act for the Incorporation and Regulation of Co-operative and Provident Societies was passed on the 8th September, 1903. The following is a list of the Societies which have been registered under the Act:—

Name of Society.	Year when Established.	Where situated.
Goldfields Co-operative Society, Limited	1903	Boulder
Fremantle Co-operative Society, Limited	1897	Fremantle
*Beauty Fishing and Supply Society Limited ...	1904	Perth
South-West Timber Hewers' Co-operative Society, Limited	1905	Collie

* Registration since cancelled.

5.—ASSOCIATIONS, HALLS, AND INSTITUTES.

Agricultural and Horticultural Associations, etc.

At the close of the year 1903 there were in the State 86 Associations and Societies of Agriculturists, Horticulturists, Wine and Fruitgrowers, Pastoralists, and Dog and Poultry Fanciers, with a total, so far as recorded, of nearly 3,000 members. Horticulture was included among the objects of at least 13 of these; fruitgrowing was only specified in six of the names, vine growing in three, dog and poultry breeding in 11, and the pastoral industry in three. The total receipts during the year amounted to more than £11,000; of this sum the Government contributed over £2,600, the balance being mostly made up from membership fees, donations, and receipts from shows. Forty-three agricultural and industrial shows were held in various parts of the State. The Royal Agricultural Society, founded in 1831, had a roll of 400 members. This society has a large, well-arranged show ground at Claremont, about half-way between Perth and Fremantle, and in close proximity to the railway. The annual shows are popular and well supported.

The following is a complete list of these Associations and Societies, so far as known to the Agricultural Department:—Albany Agricultural and Horticultural Society, Albany and District Settlers' Association, Albany and King River Settlers' Association, Albany Poultry and Dog Society, Armadale Progress Association, Balingup Farmers' Association, Bedfordale Agricultural Society, Beverley

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Agricultural Society, Boulder City Dog and Poultry Society, Boyanup Farmers' and Progress Association, Boyup Brook Agricultural and Vigilance Committee, Brunswick Farmers' Association, Bunbury Poultry and Dog Society, Canning Agricultural and Horticultural Society, Capel Farmers' Association, Claremont Poultry and Dog Society, Collie Poultry and Dog Society, Coogee Agricultural and Horticultural Society, Cookernup Farmers' Progress Association, Coolgardie Poultry and Dog Society, Darling Range Vine and Fruitgrowers' Association, Deepdale Farmers and Fruitgrowers' Association, Drakesbrook Agricultural Association, Esperance Agricultural, Horticultural, and Floricultural Society, Fremantle Dog and Poultry Society, Fremantle Horticultural Society, Geraldton Agricultural Society, Gingin Poultry and Dog Society, Goldfields Dog, Poultry, and Horticultural Society, Goomalling Farmers' Association, Great Southern Pastoral and Agricultural Districts Society, Greenhills Farmers' Club, Greenough Farmers' Association, Greenough Farmers' Club, Harvey Agricultural Alliance, Harvey Farmers' Club, Irwin Districts Agricultural Society, Jandakot Agricultural Society, Jarrahdale and Serpentine Agricultural Society, Jennapullen Agricultural Society, Jurakine Agricultural Society, Kalgoorlie Dog and Poultry Society, Kelmscott and Armadale Agricultural Society, Kojonup Agricultural Society, Lower Blackwood Farmers and Graziers' Association, Mandurah Progress and Agricultural Association, Marbellup and District Settlers' Association, Moonyoonooka Farmers' Association, Moora District Farmers' Association, Mount Barker Rural Association, Murray Farmers and Fruitgrowers' Co-operative Association, Murray Horticultural Society, Narrogin-Cuballing Agricultural Alliance, Nelson Agricultural Society, Newcastle Branch Bureau, Newtown Progress Association, Northam Agricultural Society, North Lake Progress Association, Pingelly-Mourambine Agricultural Society, Plantagenet Beekeepers' Association, Popanying Progressive League, Preston Progress Association, Quindalup Progress Association, Royal Agricultural Society of W.A., Southern Districts Agricultural Society, South-West Central Agricultural and Horticultural Society, Subiaco Poultry, Pigeon, and Cage Birds' Society, Thomson's Brook Progress Association, Toodyay Agricultural Society, Toodyay Vine and Fruitgrowers' Association, Upper Chapman Farmers and Fruitgrowers' Association, Victoria Plains Farmers' Association, Wagin-Arthur Districts Agricultural, Horticultural, and Industrial Society, Waigerup Agricultural Hall Association, Wandering Districts Agricultural Society, Wanneroo Farmers and Gardeners' Association, Waterloo Farmers and Vine and Fruitgrowers' Association, Wellington Agricultural and Pastoral Society, West Australian Poultry and Dog Society, W.A. Beekeepers' Association, W.A. Canary, Pigeon, and Bantam Club, W.A. Minorca Club, West Toolup Farmers' Association, West Swan Producers' Association, Williams Agricultural Society, Wongamine Farmers' Club, Wonnerup Progress Association, Woorooloo Progress League, York Agricultural Society, Wagin Beekeepers, Poultry Fanciers, and Fruitgrowers' Association.

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Agricultural Halls.

At the end of the year 1904, 81 Agricultural Halls were recorded as being erected throughout the agricultural districts, at the following places:—

Arthur River	Gingin Brook	Mundaring
Balingup	Goomalling	Mundijong
Bally Bally	Grass Valley	Murray, West
Belmont	Greenbushes	Nabawah
Beverley, East	Greenhills	Narrogin
Beverley, West	Harvey	Nelson
Blackwood, Lower	Jandakot	Newtown
Blackwood, Upper	Jandakot, West	Nunyle
Boyanup	Jarrahdale	Pingelly
Brookhampton	Jennapullen	Preston
Brookton	Jurakine	Quellington
Brunswick	Kalamunda	Quindalup
Bullsbrook	Karridale	Rockingham
Cannington	Kellerberrin	Smith's Mill
Capel	Kelmscott	Wagerup
Carrolup	King River	Wagin
Chidlow's Well	Kirupp	Walkaway
Chittering	Kojonup	Wandering
Clifton	Mandurah	Wanneroo
Coogee	Marradong	Warren (Balbarup)
Cookernup	Meckering	Waterloo
Coolup	Mingenew	Wedgcarrup
Cuballing	Moodiarup	Williams
Culham	Moora	Wongamine
Dardanup	Moorumbine	Wonnerup
Donnybrook	Mount Barker	Woodanilling
Drakesbrook	Mumberkine	Woorooloo

These halls are used for meetings of agricultural and other societies, and, when convenient, for social purposes. Many of the halls have, in addition, small libraries, and consequently are a valuable adjunct to rural life, both from an educational and social standpoint. Annual Government grants are given wherever the circumstances warrant this course.

Literary Societies and Mechanics' Institutes.

In Perth and other towns there are Literary Societies and Libraries in connection with most of the Churches, and also the Young Men's Christian Association. Besides these, the Swan River Mechanics' Institute—the oldest institution of the kind in the State—has of late years constructed, at a cost of over £11,000, a fine building, containing a large concert hall, lodge room, library, reading rooms, billiard room, and offices. It has a fine selection of books, and many of the best Colonial, English, and Foreign periodicals and newspapers are kept on file in the reading rooms.

The West Australian Railway Institute was founded in September, 1897: Its objects are the diffusion of literary, scientific, and useful knowledge relating to railways by means of lectures, addresses, literature, debates, etc. The library contains over 700 volumes. The institute is located in Wellington Street, Perth.

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At the close of the year 1904, 74 Mechanics' and Literary Institutes were recorded as existing in the State, as follows:—

Albany
Armadale
Beverley
Bonnievale
Boorara
Boulder
Bridgetown
Broad Arrow
Broome
Broomehill
Brown Hill
Bulong
Bunbury
Burbanks
Busselton (Weld Institute)
Busselton (Working Men's Association)
Claremont
Collie
Coolgardie
Cossack
Cue
Dandalup, North
Denmark
Derby
Dongara
Esperance
Field's Find
Fremantle
Fremantle, East
Fremantle, North
Gascoyne
Geraldton
Gingin
Greenbushes, North
Greenough
Guildford
Jarrahdale
Kalgoorlie
Kalgoorlie (Railway)
Kalgoorlie, South
Kalgoorlie Trades Hall
Kanowna
Katanning
Kunanalling
Lennonville
Malcolm
Meekatharra
Menzies
Narrogin
Newcastle
Norseman
Northam
Northam (Bushman's Club)
Northam (Railway Institute)
Northampton
Paddington
Perth, South
Pinjarra
Roebourne
Rottnest
Shark Bay
Southern Cross
Subiaco
Swan River
Tuckanarra
Victoria Park
Wagin
Waroona
Waverley
West Australian (Railway)
Williams River
Wyndham
Yarloop
York

Most of the Institutes receive a small annual grant from the Government towards their upkeep. They are usually well supplied with the best class of books and newspapers. Members who wish to make use of the circulating libraries in connection with the institutes pay an additional small yearly subscription; but, in most of them, all visitors are allowed free use of the periodical literature.

Miners' Institutes.

Thirty-six Miners' Institutes were reported to exist on the various "fields" of the State at the end of 1904, as follows:—

Austin Island
Balagundi
Bardoc
Black Flag
Boogardie
Bulong
Burtville
Coolgardie
Cuddingwarra
Cue
Day Dawn
Davyhurst
Goongarrie
Greenbushes
Kalgoorlie
Kanowna
Kimberley Goldfields
Kookynie
Kurnalpi
Lawlers
Leonora

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MINERS' INSTITUTES—*continued.*

Marble Bar	Mulgarrie	Paddington
Mount Jackson	Mulline	Peak Hill
Mount Magnet	Nannine	Sons of Gwalia
Mount Sir Samuel	Niagara	Weeloona
Morning Star	Nullagine	Yalgoo.

The Government contributes a considerable amount annually towards the upkeep of these. Most of the institutes have libraries, and are well supplied with periodicals and newspapers.

6.—CHARITABLE INSTITUTIONS, ETC.

(Information supplied by James Longmore, Superintendent of Public Charities.)

HOMES FOR THE AGED.—There are two institutions in Perth, maintained by the State, for the housing of the poor. The Old Men's Home, Mt. Eliza, for old and infirm men, had, on the 31st December, 1904, 295 inmates; the Old Women's Home, 62. The Old Men's Home, Fremantle, for old and infirm men, had, on the 31st December, 1904, 105 inmates. The Old Men's Home, Geraldton, opened on 23rd May, 1904, had, on the 31st December, 1904, 44 inmates.

OUTDOOR RELIEF.—Relief is given to destitute persons throughout the State, in the shape of rations and monetary assistance. The total number who received rations and money during 1904 was 1,146 adults and 799 children; total 1,945. The expenditure incurred on account of rations and monetary assistance amounted to £8,158 18s. 1d.

INDUSTRIAL SCHOOLS.—There are now ten institutions established in this State for the reception, maintenance, and training of destitute, neglected, or convicted boys and girls. These institutions are under the supervision of the Inspector of Industrial and Reformatory Schools.

Government Industrial School and Receiving Depôt for Boys and Girls, Subiaco (established 1894).—There were 46 boys and 24 girls resident in this institution on the 31st December, 1904, against 35 boys and 22 girls for the previous year. The principal industries taught are: Bootmaking and repairing, carpentry, picture framing, painting and glazing. Beekeeping and poultry raising were very successfully carried on during the year. The Government allowance for 1904 was £1,925 1s.

Orphanage Industrial School for Roman Catholic Girls, near Subiaco.—This institution, which was established at Perth in 1868, was removed in November, 1901, to the buildings at Subiaco, then recently vacated by the Roman Catholic boys. There were 92 inmates on the 31st December, 1904, being two more than for the previous year. The girls are taught baking, cooking, laundry work, type-

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writing, domestic duties, and the making and mending of their clothes. The Government allowance for 1904 was £1,815 4s. 7d.

Orphanage Industrial School for Junior Protestant Girls, Adelaide Terrace, Perth (*established* 1868).—There were 61 inmates on the 31st December, 1904, being same total as previous year. The girls receive instruction in cooking, laundry work, needlework, and dressmaking. Several are taught to milk. The Government allowance for 1904 was £1,229 5s. 4d.

Swan Orphanage Industrial School for Junior Protestant Boys, near Guildford (*established* 1871).—There were 70 inmates on the 31st December, 1904, being same total as previous year. The principal industries carried on are: Carpentry, bootmaking, bee-keeping, and tailoring; while the farm, some three miles from the institution, provides an excellent training in farm work for the elder inmates. The Government allowance for 1904 was £1,394 10s. 9d.

St. Kevin's Orphanage Industrial School for Senior Roman Catholic Boys, Glendalough, near Leederville (*established* 1897).—There were 38 inmates on the 31st December, 1904, being an increase of four on the previous year. The industries carried on are: Carpentry, tailoring, shoemaking, gardening, farming, and baking. The Government allowance for 1904 was £789 16s. 10d.

Clontarf Orphanage Industrial School for Junior Roman Catholic Boys, near Victoria Park.—This institution, which was established at Subiaco in 1872, was removed in September, 1901, to the new institution, then recently erected at Clontarf, on the Canning River. The new building is a magnificent one, and has cost about £10,000. There were 75 inmates on the 31st December, 1904, being a decrease of six on previous year. The work principally carried on is farming, gardening, carpentry, baking, butchering, and cooking. The Government allowance for 1904 was £1,622 19s. 11d.

Salvation Army Industrial Schools for Boys and Girls, Collie.—These institutions were opened on the 27th September, 1901, and consist of—

(1.) A Home for boys at the principal settlement, six miles from Collie.

(2.) A Home for girls, situated half-way between the Collie and the Central Home.

(3.) A Home for little boys, three miles beyond the Central Home.

The number of inmates on the Government list on 31st December, 1903, was: Boys, 37; girls, 16; total, 53. Of these seven boys and two girls were placed in situations during 1904; returned to their friends were 14 boys and six girls; two boys were discharged. The number consequently remaining on the Government list on 31st December, 1904, was 46 boys and 17 girls, or a total of 63. Of these only two (both boys) were orphans who had lost both parents; in the case of 10 boys and two girls, only the father was alive; 14

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boys and five girls had no father, the mother, however, being alive; whilst 20 boys and 10 girls were still in possession of both parents. The ages between six and nine were represented by 10 boys and four girls, those between 9 and 12 by 21 boys and seven girls, and 15 boys and six girls were over 12 years of age. The general health of the boys was very satisfactory throughout the year. As regards the Girls' Home, an unfortunate outbreak of diphtheria occurred during the month of July. Thorough industrial training is imparted to the children, whilst at the same time there is no lack of amusement provided, both for the boys and girls. The institution for the girls was established to deal with the bigger girls, but there are very few committed by magistrates, which accounts for the number of young girls admitted. The Government allowance for 1904 was £1,308 11s. 11d.

Redhill Industrial School (*established* 1903).—This institution is intended solely for boys. The number of boys on the Government list on 31st December, 1903, was eight, and during 1904 the number admitted was 15, whilst five were returned to their friends, and one obtained a situation, leaving a total of 17 remaining on the Government list on 31st December, 1904. In the case of three of these, the mother only was alive, whilst 12 still possessed both parents; of two the parentage was unknown. Between the ages of nine and 12 there were three boys, between 12 and 14 there were seven, and the other seven were over 14 years of age. During the year there was no illness whatever among the boys, the school occupying a very healthy position. The training in agriculture and kindred pursuits at this institution is of a practical nature. The boys are taught to milk cows, use a reaper and binder, and plough. The Government allowance for 1904 was £334 15s. 11d.

The actual amount contributed by the Government for the maintenance of children in all Industrial Schools during 1904 was £10,420 6s. 3d.

Children's Hospital.—Over £2,000 has been raised, a piece of ground has been secured in a favourable location, and plans have been adopted for the erection of a Children's Hospital in Perth.

Institution for the Education of the Blind—This institution is situated at Maylands, a suburb of Perth. The building can accommodate 26 inmates. Here the children receive a common school education, and the adults are taught useful trades. The institution is supported by public subscriptions and a Government subsidy.

A Deaf and Dumb Institution for the maintenance, education, industrial training, and advancement in life of deaf and dumb children was founded in 1896. The Government granted the committee the fee simple of four acres of land at Cottesloe, where, at a cost of about £1,800, a building has been erected affording accommodation for 24 inmates.

Other Institutions.—In addition to the institutions enumerated, there is a "Home of Peace" in Perth, a "Convalescent Home"

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at Cottesloe; also, at the latter place, a "Cottage by the Sea," founded by Lady Lawley for young people, and various other charitable institutions maintained by private subscriptions.

LABOUR BUREAU.—A Government Labour Bureau for men and women, having its central bureau in Perth, with branches at Fremantle, Kalgoorlie, and Cue, has been established for the purpose of supplying information respecting employers desirous of engaging work-people, and work-people seeking employment. It encourages in every possible way employers of labour to engage all labour they require through the bureau. Since the establishment of the bureau, on 16th June, 1898, each year's work has shown a steady and continuous progress. Quarterly labour returns, showing the condition of the labour market, are received from towns and districts throughout the State, and published for general information. Copies are forwarded to London, and extracts are published in the *Labour Gazette and Emigrants' Guide.*

The attached return shows the number of applicants for work, engagements (by private persons and Government departments), percentage of applicants who found work, individual employers, and applications received for workers, during the year 1904, at the Central Bureau, Perth, and its branches, the totals for 1903 being shown in parentheses.

Office.	Applicants for work.	Engagements.			Percentage of Applicants who found work.	Individual Employers.	Applications received for workers.
		Government Departments.	Private Persons.	Total.			
Central Office, Perth	5,213 (4,283)	147 (361)	2,375 (1,657)	2,522 (2,018)	48 (47)	1,095 (850)	2,196 (1,560)
Branch, Kalgoorlie (opened 25th February, 1903)	637 (1,661)	9 (699)	108 (120)	117 (819)	18 (49)	45 (54)	123 (122)
Branch, Fremantle (opened 6th April, 1903)	1,345 (906)	12 (15)	250 (144)	262 (159)	20 (17)	58 (38)	94 (50)
Branch, Cue (opened 3rd October, 1904)	4	...	...	...	...	...	...
Women's Branch, Perth (opened 11th May, 1903)	1,528 (608)	20 ...	941 (260)	961 (260)	60 (42)	923 (321)	1,690 (483)
Women's Branch, Fremantle	259	...	71	71	27	91	153
Totals	8,986 (7,458)	188 (1,075)	3,745 (2,181)	3,933 (3,256)	43·7 (43·6)	2,212 (1,263)	4,256 (2,215)

NATIVE INSTITUTIONS.—The *New Norcia Mission* receives an annual grant from the Government towards the support of the

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Mission. The number of inmates on the 31st December, 1904, was 171.

There were, on the 31st December, 1904, 46 aboriginal and half-caste children (19 boys and 27 girls) at the *Swan Anglican Native Institution*, towards the support and education of whom the Church of England receives a grant of 1s. *per capita* per day.

These grants are paid through the Protector of Aborigines.

HOSPITALS FOR THE INSANE.—There are three Government Hospitals for the Insane, one at Fremantle, one at Whitby Falls (Mundijong), and one at Claremont.

On the 31st December, 1904, the following patients were resident:—

	Males.	Females.	Total.
Fremantle	217	123	340
Claremont	86	...	86
Whitby	48	...	48
Grand Total	351	123	474

A new Hospital for the Insane is in course of erection at Claremont, to accommodate 500 patients.

The proportion of Insane persons to the population of the State, on the 31st December, 1904, was 1 to 511, or 1·96 per thousand.

At Claremont and Whitby, patients are able to engage in agricultural pursuits.

HOSPITALS.—There are Government Hospitals at the following places:—Albany, Bridgetown, Broome, Bunbury, Carnarvon, Collie, Coolgardie, Cue, Derby, Geraldton, Guildford, Kalgoorlie, Katanning, Kookynie, Lawlers, Marble Bar, Menzies, Newcastle, Northam, Onslow, Pinjarra, Roebourne, Southern Cross, Wyndham, and York. All these are wholly supported by Government funds. In addition there are "assisted" hospitals at Broad Arrow, Bulong, Kanowna, Lake Way, Laverton, Leonora, Mount Magnet, Mount Morgans, Mulwarrie, Nannine, Norseman, Peak Hill, and Ravensthorpe. These hospitals are subsidised by the Government in the following manner: a £ for £ subsidy is paid on all donations, subscriptions, and net proceeds of entertainments; 25s. per week is paid for indigent patients; and £100 per year is paid towards the medical officer's salary at all the hospitals except Nannine, where the medical officer receives £150. Finally, there are public hospitals in Perth and Fremantle, both managed by Committees under special Act of Parliament, and mainly supported by Government.

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An estimate of the work done during the year ended 30th June, 1903, by each of the hospitals then existing, may be formed from the figures given below:—

Locality.	Indoor Relief.					Outdoor Relief.
	Cases Treated.			Average Daily Number Resident.	Average Residence during the Year of Persons Treated.	Number of Patients.
	Males.	Females.	Total.			
	No.	No.	No.	No.	Days.	No.
Albany	108	21	129	9·93	28·10	245
Bridgetown ...	33	8	41	1·63	14·51	...
Broome	107	2	109	6·47	21·65	*
Bunbury	289	82	371	18·24	17·95	...
Busselton	14	6	20	0·90	16·40	*
Carnarvon	38	...	38	2·94	28·26	...
Collie	76	13	89	5·94	24·35	...
Coolgardie	366	80	446	30·41	24·88	3,516
Cue	182	44	226	11·67	18·85	141
Derby	5	...	5	0·13	9·60	...
Fremantle	468	219	687	45·00	21·00	1,120
Geraldton	143	37	180	12·98	26·31	784
Guildford	232	50	282	20·07	25·97	51
Kalgoorlie	738	234	972	56·68	21·29	4,270
Katanning	71	20	91	5·43	21·79	75
Kookynie	119	9	128	8·84	25·22	*
Lawlers	56	6	62	3·67	21·59	58
Marble Bar ...	26	...	26	1·60	22·46	...
Menzies	115	15	130	5·61	15·74	*
Northam	172	46	218	11·97	20·04	*
Onslow	21	...	21	0·95	16·43	...
Perth	1,209	601	1,810	124·50	25·10	3,417
Pinjarra	15	12	27	1·22	16·56	150
Roebourne	28	1	29	1·35	16·93	*
Southern Cross ...	89	10	99	4·95	18·23	209
Williams	30	..	30	1·28	15·63	...
Wyndham	44	...	44	2·01	16·64	79
York	78	20	98	4·02	14·97	*
Total ...	4,872	1,536	6,408	400·39	22·68	†

* No information available. † Complete figures not available.

The comparison with previous years, which is attempted in the following table, is not in every way reliable, as the figures for some of those years, notably for 1897, are not altogether complete. The particulars relate to the total number of cases treated in all hospitals during each year, the total number of deaths that occurred, and the percentage of the latter number to that of the cases treated:—

Cases and Deaths.	1894.	1895.	1896.	1897.	1898.	Half-year ended 30th June, 1899.	Year ended 30th June, 1900.	Year ended 30th June, 1901.	Year ended 30th June, 1902.	Year ended 30th June, 1903.
Cases	873	2,363	4,135	4,635	7,320	3,170	5,275	5,390	6,235	6,408
Deaths	89	240	408	386	536	236	401	474	524	476
Percentage Deaths to Cases	10·19	10·16	9·87	8·33	7·32	7·44	7·60	8·79	8·40	7·43

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7.—LAW, CRIME, ETC.

"It is well to bear in mind that crime arises largely from the *want* of something, a want probably easily and economically met in childhood; for it is usually a want of education, of a trade, a home, want of moral control, or even want of food, resulting in physical degeneracy." These words of Miss Rosa M. Barrett's, in a lecture delivered before the Royal Statistical Society on the 20th March, 1900, on "The Treatment of Juvenile Offenders," would easily lead us to expect that in a State like Western Australia, where the pinch of want is so much less keen than among the crowded populations of the older countries, crime ought to exist in smaller proportions than elsewhere. Yet such expectation is not borne out by experience. On the contrary, an investigation of the Criminal Statistics of this State proves that a larger percentage of its population infringes the laws than in countries less favourably circumstanced. A glance at the nature of that population will, however, readily explain this seeming contradiction. Constituted altogether differently from most other populations, that of Western Australia, owing to its phenomenal increase by immigration during the past decade, presents an entirely disproportionate preponderance of males over females, and of adults over juveniles. This fact in itself would probably suffice to account for the greater proportion of the criminal element in its population—for in all countries crime is naturally most prevalent amongst male adults—but, in addition, it cannot be denied that the rapid growth of our goldfields attracted, and still continues to attract, not only the legitimate miner, but also a very large number of his natural parasites—the spieler, the loafer, and the other usual outcasts of society. As the late Commissioner of Police, Lieutenant-Colonel G. B. Phillips, stated in his report for the year ended 30th June, 1898, "The increase in more serious offences must be attributed to the continued influx from other colonies of old offenders, who have acquired a high degree of skill and cunning in planning and perpetrating crimes with a minimum risk of detection."

It is, of course, difficult to draw an exact parallel between two States as regards the comparative proportions of the crime therein committed, as the annual results shown by the Criminal Statistics depend so largely on the Statutes under which, and the persons by whom, the administration of justice is carried out. The number, for instance, of charges during a certain year may vary according to circumstances quite distinct from the actual amount of crime committed, such as the greater or less exertion on the part of the police, the more or less scattered condition of the population, and numerous other causes. Nor does it convey much meaning without a knowledge of the number of commitments and convictions, and an analysis of the nature of the crimes. Again, the number of convictions includes so many offences that can hardly be looked upon as crime in its more serious sense—such as breaches of municipal and other regulations, disorderly conduct, and other punishable actions—

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that it may be safely asserted that comparisons between different countries are scarcely likely to lead to instructive results, unless only the more serious classes of offence are mutually compared; and even if this be done, the exceptional circumstances of Western Australia make any comparison in her case more or less futile. A very fair estimate of the fluctuation of crime, during that period when the State made its most rapid growth, may, however, be obtained from the annual statistics compiled from information supplied by the Police Department. In addition, figures furnished to the Government Statistician by the various Criminal Courts are available for the purpose of comparing the numbers of cases in the separate districts. The totals of these returns differ somewhat from those obtained through the police, probably owing to different methods being employed in classifying the cases.

Card System employed for collecting Statistics.

Recently a new system of collecting the crime statistics has been introduced by the Statistical Department, in conjunction with, and with the co-operation of, the Police and Prison Departments. Under this system, cards are supplied every month direct to the Government Statistician from every police station, containing full particulars of every case brought before a magistrate, whether resulting in a conviction or not. In addition, every police station or prison furnishes the Statistical Office, weekly, with a return of all the prisoners released, transferred, or otherwise removed, thus supplying a continuous record of the fluctuations of the criminal population, which record, at the end of the year, is checked by a succinct census of all persons then present in custody at each gaol and police station. The information embodied on the criminal charge cards gives the name, alias, charge, sentence, conjugal state, education, age, nationality or race, religion, trade, and other special particulars, if necessary, concerning the person charged; so that by means of these cards the annual criminal records can be readily tabulated.

Offences, Commitments, etc.

If the mean population of the State between the years 1894 and 1903 increased rapidly, from 75,055 to 221,278, the total number of offences reported to the police or magistrates rose, in proportion, nearly as rapidly, the figures for the two above-named years being 8,761 and 20,136 respectively. As the number of offences reported in 1894 and the three subsequent years included doubtful and fictitious cases, it is safe to assume that the proportion to the mean population was fairly well maintained during the decade, the percentage for the years 1898 to 1903 being strikingly uniform. The following table, whilst giving an analysis of the offences reported, distinguishes the various classes of crime represented, and their proportion.

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Number of offences reported to the police or magistrates during each of the ten years, 1894–1903.

Year.	Offences against the Person.	Prædial Larceny.	Offences against Property (other than Prædial Larceny).	Offences against Currency.	Other Offences.	Total Number of Offences Reported.	Percentage of Mean Population.
1894	742	14	1,651	24	6,330	8,761	11·67
1895	971	10	1,341	13	6,735	9,070	10·06
1896	1,187	35	2,270	35	10,850	14,377	11·72
1897	1,343	21	4,463	37	12,559	18,423	11·84
1898	1,196	27	2,799	36	12,229	16,287	9·64
1899	1,087	17	2,494	46	11,425	15,069	8·94
1900	1,092	36	2,968	26	12,102	16,224	9·17
1901	1,116	24	3,391	41	12,808	17,380	9·23
1902	885	40	3,771	21	13,807	18,524	9·00
1903	875	17	4,088	5	15,151	20,136	9·10

* Including doubtful and fictitious cases.

It will be seen that in every year the "other offences" form the lion's share of the total, the proportion both in 1894 and in 1903 being over 70 per cent. The nature of these "other offences" has already been referred to as being, in the majority of cases, more that of breaches of minor regulations for the maintenance of good order than that of actual crime. The annual balance of the offences — comprising "offences against the person," "prædial larceny," "offences against property other than prædial larceny," and "offences against currency" — appears, therefore, to be, as a rule, little more than one-fourth of the total, but in 1897 the offences against the person and against property rose above their normal proportion. This was probably owing to the greater activity of certain criminals, indicated by the Commissioner of Police in the report already quoted, especially as no corresponding disproportion is noticeable in the increase of persons charged. The offences against property, which, after the "other offences," considerably out-distance the remaining ones, are followed by those against the person; and it will be noticed that the most rapid increase during the decade is to be found in those of the former class.

It has already been remarked that, for the earlier years (1894 to 1897, both inclusive), the "offences reported" included a certain number of doubtful and fictitious cases which, since the year 1898, have been carefully eliminated. This wrongful addition to the earlier figures, and also the fact that offences committed by aborigines are necessarily also included, make the comparison, for the respective years, with the mean population of the State (from which all aborigines are excluded) more or less unprofitable.

An opportunity of more accurately gauging the proportion of crime to the mean recognised population, during each of the ten years, is afforded by the following statement relating to the number

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of separate charges disposed of and the number of persons charged, as here the aborigines are distinguished from the other criminals.

Year.	Mean Population.	Number of Separate Charges disposed of.				Number of Persons Charged.				
		Males.	Females.	Males and Females.	Aborigines.	Males.	Females.	Males and Females.	Male Aborigines.	Female Aborigines.
1894	75,055	5,985	531	6,516	636	5,172	438	5,610	561	42
1895	90,148	7,270	556	7,826	551	6,089	425	6,514	482	45
1896	122,696	12,193	580	12,773	545	9,384	468	9,852	424	44
1897	155,563	13,883	907	14,790	643	10,522	596	11,118	536	54
1898	168,999	13,333	962	14,295	607	10,966	686	11,652	456	60
1899	168,528	12,406	983	13,389	491	9,543	757	10,300	419	32
1900	176,905	13,203	1,147	14,350	513	10,200	782	10,982	430	49
1901	188,313	13,629	1,183	14,812	521	10,678	776	11,454	426	32
1902	207,755	14,596	1,333	15,929	514	11,348	896	12,244	405	27
1903	221,278	15,219	1,431	16,650	555	11,357	862	12,219	416	54

The number of aboriginal criminals has fluctuated somewhat during the ten years under review, but has, on the whole, exhibited a tendency to decrease, falling from 636 in 1894 to 555 in 1903.

In view of the fact that the recent extension of settlement has probably increased the number of natives brought into immediate contact with civilisation, this state of things cannot be regarded as other than satisfactory.

The totals, exclusive of aborigines, afford fairly reliable material for a comparison with the mean population; the percentages are:

Percentage to Mean Population of:	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.
Charges ...	8·68	8·68	10·41	9·51	8·46	7·94	8·11	7·87	7·74	7·52
Persons ...	7·47	7·23	8·03	7·15	6·90	6·11	6·21	6·08	5·95	5·52

The phenomenal growth of crime during the two years, 1896 and 1897, is strikingly evidenced by these figures; as although the mean population on each occasion attained an annual increase of more than 30,000 persons, yet the number of criminal charges and of persons criminally charged rose in a still higher proportion. It is a somewhat grave reflection on the moral condition of the community that on the average every 100 inhabitants living in the State during the year 1896 were responsible for more than ten criminal charges. And even at its lowest, in 1903, when the figures were 7·52, the proportion appears a very high one. The reason, however, for this high rate of crime is, as it has already been stated, traceable to the great preponderance of adult males in

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the constitution of the population, and it is not to be expected that any material change will be effected in this respect so long as the State continues to attract so large a number of adventurous immigrants. The later years certainly show a gradual, if only a slight, improvement under both headings.

Summary Convictions.—Taking next the Summary Convictions in the Magistrates' Courts, the following table shows the record for each class of offences during the decade 1894-1903:

Year.	Offences against the Person.	Prædial Larceny.	Other Offences against Property.	Offences against Currency.	Offences against Masters and Servants Act.	Drunkenness.	Other Offences.	Total Convictions.
1894	309	7	556	3	243	798	2,487	4,406
1895	365	10	596	...	233	1,208	2,897	5,309
1896	621	17	824	2	395	1,825	4,742	8,426
1897	601	17	993	4	604	1,842	5,523	9,584
1898	631	9	1,074	...	822	1,630	5,493	9,659
1899	615	4	941	2	503	1,595	5,633	9,293
1900	568	18	999	...	378	1,740	6,222	9,925
1901	630	9	968	.1	495	2,052	6,674	10,829
1902	406	21	1,032	...	303	2,066	7,708	11,536
1903	358	2	1,319	...	531	2,348	8,003	12,561

These figures, of course, require to be supplemented, first by the convictions following those cases which were committed for trial in the superior Courts, and secondly by the large number of cases, mostly of drunkenness, in which the persons convicted were only cautioned, or discharged as first offenders, no penalty being inflicted. The cautioned offenders and discharged first offenders in 1894 numbered no less than 1,331, and amounted in 1903 to 1,671, and of these numbers "drunkenness" was responsible for 838 and 1,165 respectively. It must, on the other hand, be remembered that the figures include all crime committed by aborigines, which, unfortunately, was not in every case separately tabulated during those years. Of the 12,561 "summary convictions" recorded during 1903, the aboriginal population was responsible for 452.

It has already been remarked that the lesser forms of crime, as previously generalised under the heading of "other offences," constitute by far the greater portion of the cases annually dealt with, and it will, from the table now under review, be further noticed that a very considerable number of these offences come under the heading "drunkenness"; whilst, in addition, many offences are, according to the police records, directly attributable to the results of drink; as, for instance, out of the 10,213 offences, not coming under the head of drunkenness itself, recorded for the year 1903, the number of such cases was 3,414.

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That the proportions of female criminals and aborigines included in the total summary convictions is not large will be seen from the following figures for the six years, 1898-1903:—

Summary Convictions of:	1898.	1899.	1900.	1901.	1902.	1903.
Males	8,665	8,288	8,777	9,567	10,263	11,080
Females	577	656	774	885	941	1,029
Aborigines	417	349	374	377	332	452
Total ...	9,659	9,293	9,925	10,829	11,536	12,561

Indictments and Informations in the Superior Courts.—These mainly relate to the more serious forms of crime, as will be at once recognised from the classification hereunder, for the decennial period, of the convictions resulting from them:—

Year.	Murder.	Manslaughter.	Rape.	Other Offences against Person.	Larceny.	Larceny in Dwelling.	Other Offences against Property.	Forgery and Uttering.	Miscellaneous Offences.	Total Convictions.	Total Number of Cases tried.
1894 ...	8	2	...	19	6	5	36	7	1	84	132
1895 ...	5	1	...	13	5	12	15	4	4	59	104
1896 ...	11	12	...	43	26	7	68	8	2	177	246
1897 ...	9	6	3	36	30	5	83	16	6	194	288
1898 ...	2	5	...	28	32	2	57	23	5	154	292
1899 ...	4	5	2	14	7	8	41	32	3	116	216
1900 ...	11	3	1	22	13	2	61	12	31	156	277
1901 ...	5	6	2	36	19	4	64	16	10	162	245
1902 ...	8	2	1	43	25	...	76	4	6	165	285
1903 ...	12	3	3	57	32	9	47	29	5	197	323

The number of convictions comprised, as a rule, less than two-thirds of the cases tried, and sometimes hardly one-half. The increase in both totals was distinctly favourable as compared with that of the mean population. The proportion of females and aborigines was invariably small. The largest number of the former tried in one year was 15, in 1903, out of a total of 323 cases, and 14 of these were convicted. Of the latter, the largest number tried in any one year was 42 in 1902, out of a total of 285 cases, and no less than 33 convictions resulted. These are mostly accounted for by the fact that numerous offenders in the far North were, during that year, committed for trial for offences that in other years had been dealt with summarily. In 1903 only eight aborigines were tried, and six convicted, in the superior Courts.

The indictable offences against the person were most numerous in the year 1903, when they totalled 75, whilst those against property reached their high-water mark in 1897, the number being 118.

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Punishments Inflicted.—With regard to the punishments inflicted on summary conviction, the following table shows that in the large majority of cases the imposition of a fine was deemed sufficient:—

Year.	Fined.	* Imprisoned.	Whipped.	Bound over with or without sureties.	Total.
1894	2,837	1,435	111	20	4,403
1895	3,646	1,573	62	28	5,309
1896	6,224	2,083	83	36	8,426
1897	6,953	2,531	41	59	9,584
1898	7,295	2,297	13	54	9,659
1899	7,043	2,145	19	86	9,293
1900	7,412	2,419	10	84	9,925
1901	8,459	2,287	21	62	10,829
1902	9,195	2,206	30	105	11,536
1903	8,957	3 318	16	270	12,561

* Including juveniles detained in Reformatory, etc.

It is remarkable that the number of fines inflicted increased more rapidly than did the population, whilst the number of cases of imprisonment lagged some way behind. The whippings decreased, and the number of persons "bound over" rose from 20 to 270. These facts seem to point to a tendency on the part of magistrates to substitute, wherever possible, the more lenient modes of punishment in place of the harsher.

The manner in which convictions in the superior Courts were disposed of during the past 10 years is shown by the following figures:—

Punishments.	1894.	1895.	1896.	1897.	1898.	1899	1900.	1901.	1902.	1903.
Fine	1	...	...	...	2	1	...	1	...	1
Imprisonment ...	59	42	126	145	119	97	122	124	144	172
Penal servitude	13	12	31	27	24	6	13	8	...	..
Sentence of death	8	5	11	11	2	4	12	6	8	12
Whipping ...	...	...	...	1	...	...	...	...	...	..
Discharge on probation ...	3	...	9	10	7	8	9	23	13	12
Totals ...	84	59	177	194	154	116	156	162	165	197

Here it is evident that the large majority of cases were met by terms of imprisonment, as were also, prior to 1902, a fair number by sentences to penal servitude. The latter mode of punishment was, however, abolished by the passing of the Criminal Code of 1902.

Drunkenness.—The number of charges of drunkenness, and the number of convictions resulting from them, are both, it is satisfactory to note in reviewing the figures for the past decade, not increasing in proportion to the increase in the population.

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This improvement is, no doubt, due to the increased feminine and home influence at present being brought about by the arrival of wives and families from the Eastern States, as also by the consequent increase in the proportion of the female and juvenile population to the population as a whole.

It will be interesting to compare the figures for male adults only, and this will in future be possible, so soon as the newly-adopted system of compiling the crime statistics will render the necessary particulars for a series of years available. A remarkable feature as regards the offence of drunkenness is the enormous increase observable in the years 1896 and 1897, which years have already been mentioned as having provided a specially bountiful harvest of crime. In the subsequent years, 1898 and 1899, when the population became more settled, and the beneficial results of family life made themselves more apparent, a considerable falling off once more occurred, and the convictions for drunkenness diminished from 1,842 in 1897 to 1,630 in 1898, and to 1,595 in 1899. Proportionately with the increase in population they rose to 1,740 in 1900, and to 2,052 in 1901, whilst in 1902 they remained fairly stationary at 2,066, but advanced again more rapidly to 2,348 in 1903. Their proportion to the mean population at present is, as already indicated, distinctly lower than in the previous years of the decade. Among the large number of offences that are partly or wholly due to intemperance, by far the greatest proportion come under the heading "disorderly conduct," the number for 1903 being 1,323 out of a total of 3,414. Using "obscene or indecent language" was the charge in 585 cases during that year. Next came "common assault," with 205 cases; "breach of the Wines, Beer, and Spirit Sale Act" followed with 175 cases, whilst "resisting or obstructing the police" was responsible for 159 cases. The totals in the other classes of offences attributable to drink were less considerable, but embraced crimes of most widely varying natures, including even "attempt to murder."

Lunacy resulting from drink.—One class of charges which accounts for 127 cases attributable to drink, and which requires special mention, is that of "lunacy." These charges, although magistrates are called upon to give a decision on them, cannot correctly be classified under the head of "crime," and the crime record, as such, must of course, be reduced by excluding them from the tables. In 1903, for instance, 300 cases of lunacy were reported, followed by 118 so-called "convictions," and by deducting these figures from the totals a more correct statement of the real offences against law and order is, of course, presented.

Charges dealt with under the First Offenders Act.—This Act, which was passed in 1892, provided a means for dealing leniently with offenders who have not previously been convicted and suffered imprisonment, and who, therefore, were presumed to be still unhardened by the influences of criminal life, as it was thought that if on their first offence they were spared the degradation of prison life, with its enforced evil companionship, their chance of turning from

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the path of lawlessness would be considerably enhanced. The provisions enacted for dealing with cases of this kind varied according to the circumstances of the case. The charge might be "dismissed on proof," a procedure somewhat similar to the "cautioning" already referred to. During 1903, 21 persons were so dealt with, mostly on charges of stealing. The charge again might be "dismissed on payment of damages and costs." During 1903, such charges numbered 17, 15 of them being cases of stealing. The person also might be "convicted and discharged on recognisance." The number so treated during 1903 was 24, stealing being again the principal charge. Finally, the person could be "convicted and discharged on recognisance, and subject to payment of damages and costs." This course, during 1903, was taken in six instances, all of stealing. "The First Offenders Act, 1892," was repealed by the Criminal Code of 1902, which, however, in its 654th section, embodies provisions similar to those of the original Act.

Juvenile Crime.—There is a considerable amount of uncertainty as to what should be regarded as the age-limit at which a juvenile criminal becomes an adult. The laws of different countries vary greatly on this point, and it seems difficult to fix upon a definite age.

The Criminal Code, adopted in 1902 by our own legislature (1 & 2 Edwardi VII., No. 14) is similar to the Imperial law in this respect. It provides that children under the age of seven years are not criminally responsible for any act or omission. Children above this age, but who have not yet attained the age of fourteen, can only be held criminally responsible if it is proved that at the time of doing the act, or making the omission, they were capable of knowing that they should not have so offended.

There can be little doubt as to the desirableness of differentiating in the method of dealing with youthful criminals. Here, more than ever, it is essential that the punishment should be above all things corrective; and it may, possibly, be a matter for future consideration on the part of the legislator whether the age limit with regard to juvenile criminals can not with advantage be raised. An especially salutary method for suppressing or dealing with juvenile crime was the introduction, into "The Industrial Schools Act of 1874," since amended in 1877, 1882, and more particularly in 1893, of certain clauses providing for the supervision and training of juvenile offenders in educational and reformatory establishments entirely distinct from the prisons.

To obtain a correct estimate of the amount of juvenile crime at present in evidence in Western Australia, a very careful analysis of the figures available is necessary. The police records contain a multiplicity of charges representing the whole of the work carried out in the Courts of Justice during the year. Many of these are only indirectly or remotely connected with criminality. First of all, every case concerning children under seven years of age must be eliminated from the number; next among the charges relating to juveniles, as legally so defined, there is one of "being neglected children." It stands to reason that this charge cannot properly be

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counted as crime. The number of neglected children in 1903, from two years old to 15, was as follows:—Males, under seven, 7; seven to thirteen, 29; fourteen, 6; female, under seven, 5; seven to thirteen, 21; fourteen and fifteen, 3; total, 71. Thirdly, it is evident that cases relating to aboriginal juveniles, seven of whom were charged during 1903, ought not to be taken together with those of white children, the conditions and circumstances being, as a rule, so very different that the charges are scarcely, if ever, comparable. When these deductions are made, the number of juvenile criminals in Western Australia is not large, a natural consequence perhaps of the preponderance of adults in the population. For the year 1903 the charges brought before magistrates were as follows:—

Offences.	Males. (Ages.)							Total.	Females. (Ages.)			Total.	Grand total.
	7	8	9	10	11	12	13		8	9	13		
Assault, common ...	...	..	...	...	...	...	2	2	...	...	...	...	2
Unlawfully using horses	...	...	...	...	...	1	1	2	...	...	...	...	2
Larceny, simple	3	6	1	5	6	2	15	38	...	1	2	3	41
Malicious injury to property	...	...	1	2	1	1	1	6	1	...	...	1	7
Unlawful possession ...	...	...	...	2	...	2	...	4	...	...	...	...	4
Unlawfully on premises	...	...	...	2	...	1	...	3	...	...	...	...	3
Disorderly conduct ...	...	...	..	4	4	3	4	15	...	...	...	...	15
Municipal By-laws, breach of	...	...	...	1	...	...	...	1	...	...	...	...	1
Absconding from Industrial School	...	...	1	...	...	2	...	3	...	...	...	...	3
Bathing without a costume, etc.	...	...	2	2	2	7	1	14	...	...	...	...	14
Revenue, offences against	...	...	...	1	...	1	...	2	...	...	...	...	2
Lunacy	...	...	...	...	1	1	...	2	...	...	...	...	2
Lands Act, 1898, breach of	...	...	...	...	...	...	2	2	...	...	...	...	2
Disobeying order of Court	...	...	...	...	1	...	...	1	...	1	1	2	3
Others	...	...	...	2	...	...	...	2	...	...	...	...	2
Total ...	3	6	5	21	15	21	26	97	1	2	3	6	103

The totals for eight years may next be compared:—

	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.
Males	66	65	71	76	76	102	94	97
Females	0	3	0	14	7	2	6	6
Totals ...	66	68	71	90	83	104	100	103

The total population of children between the ages of seven and 14 at the 1901 Census was 11,449 males, 11,350 females, total 22,799, and a comparison of these numbers with the figures representing juvenile crime for the same year bears favourable testimony to the general good behaviour of the children of the State.

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Convicted Offenders, 1903.

It has already been remarked that a large number of offenders, though convicted of the offence with which they are charged, are nevertheless dismissed without actual punishment, being either dealt with as first offenders or else simply "cautioned." Although the offences so treated are, no doubt, of a comparatively light nature, yet it is evident that they should be included in the total number of convictions in order to obtain a correct estimate of the volume of crime positively proved by our Courts of Justice. The term "summary conviction," however, has not hitherto been applied with so comprehensive a meaning. The following table gives a survey of the amount of crime thus successfully traced during the year 1903, including convictions in the Superior Courts as well as in the Petty Sessions. The offences of aborigines have, however, been excluded, their number being dealt with separately on another page.

Number of convictions during 1903, the nature of the offences, and the sentences.

Offences.	Fine.		Gaol.		Reformatory.		Bound Over.		Whipping.		Cautioned.		Discharged first Offenders.		Committed for Sentence.		Death.		Total.		Grand Total.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Against the person	206	17	116	8	1	...	16	1	...	...	10	...	...	...	...	...	3	...	352	26	378
Against person and property ...	...	..	35	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	36	...	36
Against property only	309	33	578	39	15	1	47	7	10	...	23	3	46	14	...	...	...	...	1,028	97	1,125
Forgery and offences against the currency	...	...	22	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22	2	24
Against good order	5,499	381	1,412	335	36	10	92	10	...	..	1,398	75	8	...	...	...	...	..	8,445	811	9,256
Offences relating to carrying out laws	38	1	41	1	14	...	2	...	3	...	5	...	...	...	...	...	...	...	103	2	105
Offences relating to revenue ...	629	59	31	...	...	...	...	...	..	...	22	1	...	...	...	..	..	..	682	60	742
Against public welfare ...	1,579	105	251	...	31	24	5	...	...	...	37	2	...	...	...	...	...	..	1,903	131	2,034
Total	8,260	596	2,486	385	97	35	162	18	13	...	1,495	81	54	14	1	...	3	..	12,571	1,129	13,700

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It will be seen that fines were inflicted for a large majority of the offences "relating to revenue" and those "against good order," "against public welfare," and "against the person," whilst the offences "against property," "against person and property," "against the currency," and the "offences relating to carrying out laws," were more frequently punished by imprisonment. The larger number of the persons "cautioned" had offended "against good order." Whippings were inflicted only for offences "against property" and those "relating to carrying out laws." As first offenders were discharged no others than a certain number who had violated the laws protecting "property" and "good order." Of the 378 persons convicted for offences "against the person," no less than 285 had committed "common assault." Of the 36 offences "against person and property," 19 were cases of "housebreaking and stealing." "Larceny" in its various forms accounted for the greater part of the offences "against property." Among the offences "against good order" the lion share fell to "drunkenness," no less than 3,430 of the 9,256 convictions being due to this offence, whilst "disorderly conduct" accounted for 1,547 convictions, 1,273 of which were "attributable to drink," and breaches of the Wine, Beer, and Spirit Sale Act, bearing on the preservation of good order, contributed 1,027 convictions. When it is taken into consideration that, in addition to the actual cases of "drunkenness," and those connected with the sale of drink, a total of 2,816 of the other convictions were indirectly attributable to drink, it cannot be denied that, as far as the number of cases is concerned, drink was responsible for the greater portion of the crime committed. Of the 105 convictions for "offences relating to carrying out laws," 54 were cases of "escaping from legal custody," and 35 of "disobeying orders of the Court." "Offences relating to Revenue," numbering 742, were, in 168 cases, evasions of payment for dog licenses, in 106 cases breaches of the Crown Lands Act, in 108 cases breaches of the Cart and Carriage Act, in 99 cases evasions of payment for hawkers' licenses, and, for the remainder, breaches of various Acts of Parliament or municipal and other regulations. Amongst the "offences against public welfare," those specified as "breaches of the Masters and Servants' Act" stood out prominently with a total of 502, followed by "breaches of the Education Act," 342; "breaches of the Health Act," 237; and "breaches of the Seamen and Merchant Shipping Act," 219. The latter, as well as the offence of being a "stowaway," were mostly punished by imprisonment; but most of the numerous classes of other offences were met principally by fines. Under this general heading also comes the offence described as "being a neglected child," which, in 52 cases, resulted in the child being sent to the Reformatory, whilst on three occasions the charge was dismissed with a "caution." The 52 children just referred to, 31 of whom were boys, formed a considerable proportion of the total of 97 boys and 35 girls sent to the Reformatory for all offences. It may be mentioned that cases of "lunacy" have been excluded from the table under consideration.

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The 13,700 convictions represented a total of 10,350 persons convicted either once or more than once during the year, being 9,681 male and 669 female offenders. The following table shows these persons in their respective age groups classified according to the nature of the principal offence for which they were convicted during the year.

Offences.	Ages.												Total.	
	2 and under 7.		7 and under 14.		14 and under 16.		16 and under 21.		21 and under 60.		60 and over.			
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Against the Person ...	...	...	1	...	2	...	15	2	281	21	4	...	303	23
Against Person and Property	...	...	...	...	...	...	2	..	29	...	...	..	31	...
Against Property only ...	...	..	39	3	37	...	113	11	681	65	29	2	899	81
Against the Currency ...	...	...	.	...	...	...	...	..	11	...	.	..	11	—
Against Good Order ...	...	...	34	...	20	1	301	24	5,822	359	202	16	6,439	400
Relating to carrying out Laws	...	...	3	...	5	...	4	..	33	...	3	..	48	.
Relating to Revenue ...	...	...	2	...	5	...	25	...	456	44	15	3	503	47
Against Public Welfare ...	6	5	21	14	8	2	65	...	1,312	96	35	1	1,447	118
Total	6	5	100	17	77	3	525	37	8,625	585	a348	22	9,681	669

a Including four persons whose age was not stated.

It will be seen that 6 boys and 5 girls under the age of 7 were dealt with. All these, it is satisfactory to record, were sent to the Reformatory. Between the ages of 7 and 14, a total of 100 boys and 17 girls were convicted. Between the ages of 14 and 16, the total number of boys was 77, that of the girls 3. How these juveniles were dealt with may be seen from the following table of their separate convictions:—

Age Groups.	Fine.		Gaol.		Reformatory.		Bound over.		Whipping.		Cautioned.		Discharged as First Offenders.		Total.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
7 and under 14 ...	41	1	...	...	28	15	6	...	4	...	19	1	7	...	105	17
14 and under 16 ..	40	1	5	...	20	2	1	...	8	...	11	...	7		92	3
Total ...	81	2	5	...	48	17	7	...	12	..	30	1	14	...	197	20

In 83 cases fines were inflicted, 48 boys and 17 girls were sent to the Reformatory, 12 boys were whipped, and the other children, all except 5 boys, were let off without any actual punishment being inflicted.

Of the 5 cases in which boys were sent to gaol, 4 were boys of the age of 15: two of these received one month hard labour and 10 strokes with the birch for stealing; one received one month hard labour for stealing from a shop; and one received one month imprisonment for a breach of the Foreign Seamen's Act. The other was a boy of 14, who received 3 months hard labour for stealing.

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It is, undoubtedly, a painful reflection, when the youthful ages of these prisoners are considered, that children of 14 or 15 years, whose sentences do not bring them under the provisions of "The Industrial Schools Act," should be exposed, for periods ranging from one month to three months, to the contaminating influences of actual prison life.

All the "offences against the currency" were committed by men between the ages of 21 and 40. The convicted persons between the ages of 21 and 60 were, as might be expected, particularly numerous. Between 21 and 25 they numbered 912 males and 48 females; between 25 and 30 the numbers were 1,635 males and 96 females; between 30 and 35 they were 1,749 males and 120 females; between 35 and 40 they were 1,568 males and 115 females; between 40 and 45 they were 1,309 males and 88 females; between 45 and 50 they were 746 males and 50 females; between 50 and 55 they were 465 males and 42 females; and between 55 and 60 they were 241 males and 26 females. It will be seen that the convicted persons between the ages of 30 and 35 years were more numerous than in any other age group, and when the composition of the population at the Census of 1901 is taken into consideration, this seems only natural. At that epoch the age group between 25 and 30 years was the most numerous one. Persons of the age of 28 and 29 years numbered 9,909, and these, in 1903, had probably mostly passed into the next quinquennial group. Persons of the ages of 33 and 34 years in 1901, on the other hand, only numbered 7,835, whilst those who at that period were 23 or 24 years of age, numbered 8,506. The age group between 25 and 30 years, at the time of the Census, numbered 24,499, and that between 30 and 35 years numbered 22,143 persons. By age-movement alone, therefore, the former group, in 1903, would have changed to 23,096, and the latter to 24,217 persons. Consequently, on a percentage basis, it would be only reasonable to expect that the 30-35 age group should, in 1903, have produced the greatest number of criminals. In addition, it is almost a certainty that, in the main, even the percentage itself of convicted persons to population would prove to be lower in the earlier and later stages of life than in the middle age, were absolutely accurate population figures available for intercensal years.

The figures reveal the fact that a considerable number of convictions occurred among persons over 60 years of age. No less than 15 men over 80 years of age were convicted, one being actually over 95; and when it is found that 6 of the octogenarians were convicted several times during the year, one even as many as five times, it may not inappropriately be asked whether there is not perhaps a more suitable manner of dealing with these men than by repeatedly bringing them into the Police Court, they being probably no longer entirely accountable for their actions.

If the ability to read and write may be taken as a fair standard of education, this standard cannot be said to be low among the persons convicted of crime in Western Australia, for only 387 males and 23 females were shown to be illiterate, whilst 17 males and 1

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female could only read. It may be safely assumed that the bulk of the persons stated to be illiterate were Asiatics.

As might be expected, the number of convicted persons born in Western Australia is relatively small. In making deductions, however, from the totals, here, as in other particulars relative to the criminal population, it is unwise to place too great a reliance on their correctness, there being, of course, almost unlimited scope for wilful as well as unintentional misstatement of the facts on the part of the prisoner when questioned. On the other hand, except in those cases where special reasons exist for frequent misstatements of a particular kind being made, the figures may, as a rule, be accepted as giving a fairly accurate view of the facts, especially where the numbers dealt with are large. Whether the rather large proportion of female offenders shown as being of Western Australian birth, as compared with the locally-born males, is traceable to some such cause as above indicated, must, of course, remain a matter for speculation; but it certainly seems remarkable that of the 5,013 male Australasians only 801 were West Australians, whilst among 406 women born in Australasia no less than 123 were found to be natives of our own State. The following is a tabular statement of the principal nationalities represented among the criminal population during 1903:—

Nationality, etc.	Males.	Females.	Total.
Western Australia	801	123	924
New South Wales	670	47	717
Victoria	2,128	140	2,268
Queensland	112	7	119
South Australia	725	45	770
Tasmania	83	11	94
Australians (undefined)	361	19	380
Half-caste Aborigines	25	4	29
New Zealand	105	10	115
South Sea Islanders	3	...	3
Total Australasia	5,013	406	5,419
England and Wales	1,616	121	1,737
Scotland	394	17	411
Ireland	936	86	1,022
Total United Kingdom ...	2,946	224	3,170
Britons born elsewhere	16	..	16
Germans	187	9	196
Sweden and Norway	220	...	220
Italians	149	6	155
Russians	89	1	90
French	61	14	75
Greeks	61	...	61
United States of America	81	3	84
Chinese	351	...	351
Japanese	55	1	56
Malays	126	...	126
All others	326	5	331
Grand Total	9,681	669	10,350

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From the above it would appear that Victoria holds the unenviable distinction of having supplied the largest number of offenders, which, however, is at once accounted for by the fact that at the Census she was found to be much more numerously represented among the adult population than any other State or country. England, with which Wales is included, ranks second, with 1,737 offenders. Ireland contributed 1,022 and Scotland 411, making the total from the United Kingdom 3,170. As regards the remaining offenders, the majority were contributed by the other States of Australia.

A considerable number of convicted persons are old habitual offenders, and some have been sentenced more often than can be readily ascertained. In 1903 no less than 587 male and 89 female persons were convicted, against whom more than 12 previous convictions were on record. Of the males, 7,566 were convicted for the first time, and of the females 424, leaving a balance of 2,115 males and 245 females who had been convicted more than once. The following table shows the total number of distinct persons convicted during 1903, classified according to age groups, and also to the total number of their convictions during the year:—

Number of Convictions during year.	Under 14 years.		14 and under 16.		16 and under 21.		21 and under 40.		40 and under 60.		60 and over.		Total.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
One ...	102	22	69	3	445	26	4,893	262	2,236	152	266	12	8,011	477
Two ...	4	...	3	...	60	6	683	65	360	25	48	6	1,158	102
Three ...	...	...	3	...	14	5	166	18	87	13	15	...	285	36
Four ...	...	...	1	...	4	..	54	10	36	6	8	3	103	19
Five ..	...	...	1	...	2	...	28	6	19	5	5	...	55	11
Six ..	...	...	...	...	...	.	16	3	9	..	4	...	29	3
Seven ...	...	...	...	...	...	...	8	5	4	4	1	...	13	9
Eight ..	...	...	...	...	...	.	5	1	1	...	...	1	6	2
Nine ...	...	...	...	...	...	...	6	2	4	1	...	..	10	3
Ten ...	...	...	...	...	...	...	1	1	1	...	...	...	2	1
Eleven ...	...	...	...	...	...	...	...	1	1	...	...	.	1	1
Twelve ...	...	...	...	...	...	...	1	...	...	...	...	...	1	...
Over twelve	...	...	...	..	...	.	3	5	3	.	1	.	7	5
Total ...	108	22	77	3	525	37	5,864	379	2,761	206	348	22	9,681	669

It will be observed that four children under the age of fourteen years were each convicted twice during the year, whilst between the ages of fourteen and sixteen there were three who each received two convictions, three others who each received three convictions, one who received four, and one who received no less than five convictions. More than twelve convictions in the one year were recorded against each of seven men and five women.

As regards the alleged religion of the persons convicted, it is not easy to obtain anything like a correct estimate of the real number actually belonging to any religious denomination. The statements made by them in this respect are, as a rule, less reliable, if possible, than any other.

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The figures are as follows:—

Nominal Religion.	Males.	Females.	Total.
Protestants	4,442	281	4,723
Roman Catholics	2,993	295	3,288
Greek Church	50	...	50
Christians (undefined) ...	1,397	85	1,482
Mahomedans	206	...	206
Jews	90	4	94
Buddhists	132	...	132
Others	371	4	375
Total	9,681	669	10,350

Under the heading "others" are included a large number of Asiatics who were stated to be "pagans," but who were probably mostly Buddhists or Confucians. It would appear, as might naturally be expected from the composition of the population, that the Protestant denomination, when its various sects are all taken together, is the most largely represented; yet the number of Roman Catholics is not so far behind as would have seemed probable. In view of the fact that the Census figures place the number of adherents of the Church of Rome in Western Australia at less than one-fourth of the population, there is perhaps reason to suspect that, as already indicated, the figures with regard to this section of the offenders are not altogether reliable.

It has been remarked by most writers on criminology that want of technical training is one of the principal concomitants, if not perhaps one of the direct causes of crime. This opinion is borne out by the figures relating to persons convicted in Western Australia. For not only were 370 male and 227 female offenders during 1903 recorded as being without definite occupation, but no less than 3,303 of the men convicted were described as "labourers," which means, it may be safely assumed, that the majority were unskilled in any specific trade. Far too well represented also were those trades and occupations which lend themselves readily to evasion of the severer tests of technical training, and in which, consequently, the supply is often much in excess of the demand. There were, for instance, among the men, 232 "clerks," 236 carriers and carters, and 988 "miners;" whilst no less than 527 offenders were "sailors or seamen," who are, properly speaking, men who can hardly be regarded as belonging to the settled population of the State, and who were only for the most part guilty of the minor offences of drunkenness, disorderliness, or disobedience. Among the other more largely represented trades were: carpenters, joiners, and cabinet-makers, 198; cooks and kitchenmen, 135; hotel-keepers, 153; hawkers, 146; gardeners, 133; fishermen, 120; farmers, 114; shopkeepers, shop assistants, and storemen, 139. As regards the women, presuming the statements made by them to be fairly reliable, it cannot be said to reflect great credit on the influences

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exercised by the condition of matrimony, that out of a total of 669 no less than 323 gave their status as "married women."

There is an unmistakable connection between some of the occupations and certain classes of offences. For instance, offences relating to revenue were committed by a considerable percentage of the carriers and carters, hawkers, hotel-keepers, and wood-cutters—a clear indication that the exercise of these trades without license was to blame for many of the convictions. Offences against public welfare were recorded with regard to numerous builders and contractors, carriers and carters, dairy proprietors, farmers, fishermen, hotel-keepers, mine managers, sailors and seamen, shopkeepers, timber-hewers, and wood-cutters. Here, of course, we must look for an explanation to the "Masters and Servants' Act," the "Health Act," the "Seamen and Merchant Shipping Act," the "Fisheries and Game Act," the "Early Closing Act," the "Width of Tires Act," the "Crown Lands Act," and other similar measures.

Convictions of Aborigines.

A large proportion of the offences committed by aboriginal natives comes under the heading "cattle-killing and stealing;" out of a total of 450 convictions of male aborigines no less than 189 being, during the year 1903, due to this offence. All these cases were punished by imprisonment. "Drunkenness" accounted for 46 convictions of males and 34 of females. "Disorderly conduct," almost in every instance attributable to drink, led to 41 convictions of males and 14 of females. "Cases of stealing," in one case qualified as "stealing money," and in another as "attempted sheep-stealing," were recorded to the number of 42 against males, only one female being so convicted. This, of course, is exclusive of the offence of "cattle-stealing" already referred to. "Absconding from service" accounted for 30 males and seven females being convicted, whilst 20 cases of assault by male aborigines occurred. The balance of the convictions were due to a variety of offences, the total number of convictions against females being 61. In 74 cases of males and 15 cases of females the offence was attributable to drink. The convictions were followed by imprisonment in 376 cases of males and 21 of females. Fines were inflicted on 32 males and 9 females. The other cases of male aborigines resulted in 12 offenders being "bound over," three "whipped," and 26 "cautioned," whilst one was "committed for sentence," the sentence not being passed until the beginning of the following year. As regards the females, six were sent to the Reformatory and 25 "cautioned."

The 511 convictions of aborigines represented a total of 401 distinct males and 54 distinct females. Of the men four were police trackers, seven station hands, eight shepherds, three seamen, eight servants, 89 labourers, and 281 without definite occupation, whilst one was a kangaroo hunter. Of the women 16 were servants and 38 without definite occupation. One of the latter was stated to belong to the Church of England and one to the Roman Catholic Church. The other women were recorded as Pagans, as were also

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400 of the men. Only one male aboriginal was stated to be a Roman Catholic. All the aboriginal offenders were reported to be unable to read or write.

Of the men, 363 were convicted once, 28 twice, nine three times, and one four times, during the year. Of the women, 46 were convicted once, five twice, two three times, and one five times. A large number had been previously convicted; two as many as nine times.

As regards the ages of the offenders, five boys and one girl were under 16 years of age, 59 males and 10 females were between the ages of 16 and 21 years, 142 males and 19 females between 21 and 30 years, 128 males and 14 females between 30 and 40 years, 50 males and seven females between 40 and 50 years, 15 males and one female between 50 and 60 years, and two males and two females were stated to be between 60 and 70 years of age. The six children under 16 were all convicted of "offences against property," in four cases the charge being "larceny," in one "unlawful possession," and in one "false pretences." All were sent to prison, with sentences ranging from less than three days to over three months. One was stated to be no older than seven years, two were 12 years of age, one was 14, and two were 15 years of age. One boy received two sentences during the year.

Recent Enactments.

"The Justices Act, 1902," although dealing principally with the procedure in connection with the administration of justice in the State, contains some clauses which constitute certain acts, or conditions of life, criminally offensive.

Evil Fame.—One of these specially referred to by the Commissioner of Police as having "worked well," and, in view of results, being "a very useful addition to the Statute Book," is the so-called "evil fame" clause (No. 173), which reads as follows: "When complaint in writing on oath, is made before a justice, that any person is a person of evil fame, and the complainant therefore prays that the defendant may be required to find sufficient sureties to be of good behaviour, such proceedings may be had as are in this part of the Act mentioned."

Gold Stealing.—The Police Act Amendment Act, 1902, embodies, among others, some stringent measures with regard to gold stealing. The new offence created by the enactment is that of having possession of gold reasonably suspected of being stolen, and being unable to prove to the satisfaction of the Magistrate that such gold was lawfully obtained.

Identification of Criminals.

On this important subject the Commissioner of Police, Captain F. A. Hare, has kindly supplied the following interesting and valuable notes: "For some considerable time great difficulty had been experienced by the police in this State in establishing the

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identity of criminals, the method in use being photography, supplemented by an index of tattoo marks, nationality, height, colour of hair, eyes, etc. This, although fairly satisfactory in some cases, was found to be far from perfect, the facility with which tattoo marks can be altered, the changes in personal appearance, and errors in measurement and description, rendering identification a matter of uncertainty.

A study was made of the Bertillon system, with a view to its adoption, but the difficulty of obtaining, in the rank of the police force, men of sufficient skill and education to make the system a success, proved an insuperable obstacle.

In August, 1902, attention was directed to an article on "Finger Prints, and the detection of crime in India," and as a result of this the Police Department obtained copies of the standard work on the subject, "Henry's classification and uses of finger prints." The Commissioner of Police having approved the adoption of the system as in force in England, a commencement was made in January 1903, members of the police force stationed at those places where there is a gaol being instructed in the method of taking the impressions.

The system is as follows: On receipt of a prisoner at a gaol, his finger prints are at once taken by a police officer (at Fremantle Prison by the police photographer) on the form supplied, which contains also a personal description, and record of offence and sentence. The form is forwarded to the Criminal Investigation Department, Perth, where it is classified and compared with the records already received, for the purpose of identifying the prisoner if already convicted under another name.

A brief summary of the method of classification may be of interest:—The impressions are arranged in two classes, viz., loops (including arches and ulnar and radial loops) and whorls (including central and lateral pockets, twinned loops and accidentals). Combinations of these two classes, formed by taking the ten digits in pairs, provide a primary classification in 1,024 classes. These are sub-classified by the occurrence of arches and ulnar and radial loops in the index and middle fingers of both hands; further sub-divided by counting and tracing the ridges (as the elevations between the lines on the fingers are called), and still further sub-divided by counting the ridges of the right little finger. By this method classification can be extended almost indefinitely.

The forms are kept between file boards, and placed in pigeon holes numbered in accordance with the system of classification, which is so complete that a search through a collection of 30,000 records can be made in a few minutes.

The great advantages of Henry's system are:—

(1.) Simplicity of working.

(2.) Small cost of material.

(3.) All skilled work is carried out at the Central Office.

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(4.) Rapidity with which records are taken.

(5.) Absolute certainty of identification.

The working of the system in this State is entirely carried out by the Police Department, which was the first to initiate a scheme of interchange of finger prints, by forwarding to the Eastern States reduced photographs of the impressions, a practice which must, in course of time, prove of the greatest assistance in the identification of habitual criminals, and consequently lend considerable aid towards the suppression of crime."

The desirability of the general adoption of this system of identification throughout the Commonwealth of Australia was at once recognised by Captain Hare, and it is gratifying to note that, at the recent Conference, in Melbourne, of the Police Commissioners of the six States of the Commonwealth, his suggestion to this effect was favourably received, and a uniform scheme for identification and classification, to be used throughout the Commonwealth, was unanimously agreed upon.

Police Commissioners' Conference.

As early as June, 1903, a suggestion was made to the Government by the local Commissioner of Police that it was desirable, if possible, to arrange for a Conference to be held of all the Commissioners of Police of the States of the Commonwealth, and of New Zealand, at an early date, for the purpose of bringing Australasian police methods into line, and establishing, as far as possible, a uniform system of police work. The concurrence of the several Governments having been obtained, the necessary arrangements were made, and the delegates of the six federated States met in Melbourne in November, 1903, New Zealand being, unfortunately, unable to take part.

The results of this Conference were of a most satisfactory nature. The main points decided upon were set forth in a report presented to the Government.

A proposal as to the interchange of police was unanimously agreed to by the members of the Conference, but the authority of the several State Governments has not so far been accorded to the measure.

The proposed interchange will, it is thought, afford selected members of the force of each State an opportunity—which they have not hitherto possessed—of becoming personally acquainted with the more prominent criminals in other States beside their own, which should be of the greatest assistance to them in recognising new arrivals, or in ascertaining the present whereabouts of old offenders who have before been under their notice. Under this system it is proposed to mutually exchange each year, for a period of from three weeks to a month, one or two detectives or plain clothes constables specially selected for this particular work, who will, whilst they are on their visit, be told off for such special duty, in company with local men picked for the purpose, as will give them every

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opportunity of becoming thoroughly acquainted with the criminal society of the State visited.

In addition, recommendations were made by the Conference with regard to the methods of dealing with fugitive offenders, the influx of criminals from other parts, habitual criminals, etc., etc.

Court Sessions.

An estimate of the amount of Criminal and Civil Court business done in each Magisterial District of the State may be formed from the returns annually supplied by the Registrar of the Supreme Court, the Magistrates, Government Residents, and Wardens of the goldfields. The returns of the Criminal Courts thus supplied cannot very well be compared with those furnished by the Police Department, as the manner of compilation is not in every respect the same. The following table gives the number of cases dealt with during 1903 in each of the Superior Courts, and also the number of convictions:—

Place where held.	Offences by—						Total Offences.	
	White Races.		Coloured Races.					
			Aborigines.		All others.			
	Cases tried.	Convictions.	Cases tried.	Convictions.	Cases tried.	Convictions.	Cases tried.	Convictions.
Supreme Court—								
Broome ...	...	...	1	1	1	1	2	2
Kalgoorlie ...	64	36	2	2	10	7	76	45
Perth	159	101	1	...	10	7	170	108
Wyndham ...	...	...	5	2	...	...	5	2
Courts of Quarter Sessions—								
Albany ...	1	...	...	...	1	1	2	1
Broome ...	1	1	1	1	10	10	12	12
Bunbury ...	9	6	...	...	...	...	9	6
Cue	5	4	...	...	...	...	5	4
Derby... ...	...	...	1	1	1	1	2	2
Geraldton ...	3	1	...	...	1	1	4	2
Roebourne ...	...	...	3	3	...	...	3	3
Wyndham ...	3	3	15	15	...	...	18	18
Total ...	245	152	29	25	34	28	308	205

Of the 29 offences charged against aborigines 11 were stated to be "offences against the individual," and 18 "offences against property." Of the 34 charges against other coloured races 27 were "against the individual," and 7 "against property." The 245 charges against white offenders were made up as follows:—164 "against property," 58 "against the individual," and 23 "against the public."

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The Indictable Offences and Commitments in the Courts of Petty Sessions throughout the State, during 1903, were as follows:—

Place where held.	Indictable Offences by—						Total Indictable Offences.	
	White Races.		Coloured Races.					
			Aborigines.		All others.			
	Cases tried.	Commitments.	Cases tried.	Commitments.	Cases tried.	Commitments.	Cases tried.	Commitments.
Albany	1	1	...	...	7	1	8	2
Beverley	4	3	...	...	...	...	4	3
Boulder	14	10	...	...	4	4	18	14
Broome	4	3	...	...	19	8	23	11
Bunbury	4	2	...	...	...	...	4	2
Carnarvon ...	...	...	...	...	4	1	4	1
Collie	3	2	...	...	...	...	3	2
Coolgardie... ...	8	6	...	...	1	1	9	7
Cue and Day Dawn	...	...	...	...	1	...	1	...
Derby	...	...	1	1	1	1	2	2
Esperance... ...	...	...	4	1	...	...	4	1
Fremantle ...	19	18	...	...	...	..	19	18
Geraldton	4	4	...	...	1	1	5	5
Greenbushes ...	1	1	...	...	...	...	1	1
Guildford	21	20	...	...	...	...	21	20
Hall's Creek ...	1	...	33	33	1	...	35	33
Jarrahdale ...	1	1	...	...	...	...	1	1
Kalgoorlie ...	47	35	...	...	...	...	47	35
Kanowna	5	4	...	...	2	2	7	6
Kookynie	2	2	...	...	...	...	2	2
Laverton	1	...	1	1	...	...	2	1
Lawlers	4	4	...	...	2	...	6	4
Leonora	2	2	...	...	...	...	2	2
Malcolm	1	...	...	...	2	1	3	1
Marble Bar ...	...	...	1	1	1	...	2	1
Menzies	10	9	...	...	...	...	10	9
Moora	1	1	...	...	...	...	1	1
Mt. Magnet ...	2	1	...	...	...	...	2	1
Mt. Morgans ...	14	7	...	...	...	...	14	7
Narrogin	11	1	...	...	...	...	11	1
Norseman	3	...	...	...	...	...	3	..
Northam	21	11	...	...	1	...	22	11
Nullagine	1	1	...	...	...	...	1	1
Peak Hill	...	...	1	1	...	...	1	1
Perth	219	107	...	...	7	2	226	109
Pinjarra	2	2	...	...	...	...	2	2
Port Hedland ...	...	...	...	...	2	1	2	1
Roebourne... ...	1	...	...	...	...	...	1	...
Wyndham ...	2	2	1	...	...	...	3	2
Yalgoo	2	1	...	...	...	...	2	1
Total	436	261	42	38	56	23	534	322

The 436 charges against whites were made up as follows:—222 "against property"; 141 "against the individual"; and 73 "against the public." Of the 42 charges against aborigines, 8 were offences "against the individual," the other 34 being "against property." Of the 56 charges against other coloured persons, 21 were "against property," 28 "against the individual," and 7 "against the public."

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The bulk of the Criminal charges are of offences triable summarily in the Courts of Petty Sessions.

The details for the separate Courts for the year 1903 were:—

Place where held.	Offences triable summarily charged against—						Total offences triable summarily.	
	White Races.		Coloured Races.					
			Aborigines.		All Others.			
	Cases tried.	Convictions.	Cases tried.	Convictions.	Cases tried.	Convictions.	Cases tried.	Convictions.
Albany	217	205	5	3	11	11	233	219
Beverley	83	73	14	14	1	1	98	88
Boulder	615	423	4	4	6	6	625	433
Bridgetown ..	57	44	7	6	..	..	64	50
Broad Arrow ..	68	40	..	..	..	..	68	40
Broome	113	86	26	23	249	242	388	351
Bulong	60	46	..	..	..	..	60	46
Bunbury	551	482	1	1	4	4	556	487
Busselton .. .	85	68	2	2	..	..	87	70
Carnarvon.. ..	67	60	25	20	13	9	105	89
Collie	260	185	.	..	.	..	260	185
Coolgardie	352	297	20	18	4	1	376	316
Cossack	39	27	10	9	17	9	66	45
Cue and Day Dawn	325	185	2	..	10	5	337	190
Derby	44	41	81	75	4	3	129	119
Dongara	21	21	..	..	..	..	21	21
Esperance	9	6	11	9	..	..	20	15
Fremantle	2,449	2,076	1	1	83	73	2,533	2,150
Geraldton	234	198	1	1	22	15	257	214
Gingin	12	10	..	.	..	..	12	10
Greenbushes ..	124	81	..	..	..	..	124	81
Greenough.. ..	6	5	.	..	..	..	6	5
Guildford	447	306	2	..	..	..	449	306
Hall's Creek ..	..	..	64	64	1	1	65	65
Jarrahdale	90	74	..	..	..	..	90	74
Kalgoorlie	793	673	..	..	..	..	793	673
Kanowna . ..	210	155	..	..	..	..	210	155
Katanning ..	95	84	3	3	..	..	98	87
Kojonup	6	6	..	..	..	..	6	6
Kookynie	196	160	5	5		..	201	165
Kunanalling ..	2	2	..	..	..	..	2	2
Laverton	101	86	..	..	..	..	101	86
Lawlers	167	146	4	4	4	2	175	152
Leonora	155	139	4	..	..	..	159	139
Malcolm	199	176	..	..	7	4	206	180
Marble Bar ..	34	16	17	14	19	19	70	49
Menzies	124	104	12	12	3	3	139	119
Moora	18	18	..	..	1	1	19	19
Mount Magnet ..	111	96	4	2	1	1	116	99
Mount Morgans ..	184	124	3	2	1	..	188	126
Mulwarrie	14	11	..	..	..	..	14	11
Nannine	49	33	3	3	..	..	52	36
Narrogin	37	33	..	..	..	..	37	33
Newcastle	97	75	8	8	..	..	105	83
Norseman	79	69	2	1	7	7	88	77
Northam	383	336	18	18	19	14	420	368
Northampton ..	19	13	14	14	..	..	33	27
Nullagine	15	9	4	2	1	1	20	12
Onslow	15	12	4	4	5	4	24	20
Peak Hill	67	31	1	1	..	..	68	32
Perth	5,062	4,375	2	2	313	309	5,377	4,686
Pinjarra	65	45	..	..	..	..	65	45
Port Hedland ..	26	14	8	6	8	8	42	28
Ravensthorpe ..	12	12	1	1	..	..	13	13
Roebourne	55	43	1	1	17	5	73	49
Southern Cross ..	129	104	1	1	1	1	131	106
Tableland	..	..	3	3	..	..	3	3
Wagin	31	31	..	..	..	..	31	31
Whim Creek ..	5	4	..	..	..	..	5	4
Wiluna	89	86	7	7	3	2	99	95
Wyndham	53	32	72	67	1	1	126	100
Yalgoo	27	22	13	11	3	2	43	35
York	188	146	1	1	6	4	195	151
Total ..	15,240	12,560	491	443	845	768	16,576	13,771

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The charges, to the number of 15,240, against persons of European extraction, were made up as follows: "Against the public," 4,675; "against the individual," 1,108; "against property," 1,275; "drunkenness," 3,435; "other offences," 4,747. Those concerning aborigines comprised 76 "against the public"; 37 "against the individual"; 241 "against property"; 67 charges of drunkenness; and 70 other offences; making a total of 491 charges. The balance of 845 cases tried, those in which other coloured persons were charged, comprised 341 "against the public"; 63 "against the individual"; 39 "against property"; 54 charges of drunkenness; and 348 other charges.

A true comparison of the proportion of crime occurring in the various Magisterial Districts can, of course, only be made on a population basis. First of all, then, the offences charged against aborigines must be omitted. Further, it is evident that the offences disposed of in the Superior Courts, as given in the present returns, cannot be used, since the places of trial for these are, in a large proportion of the cases, not in the districts where the offences have been committed. The number of cases tried does not necessarily afford a true index of the actual amount of crime committed, since it may only disclose the degree of activity displayed by the police in a special district; it is, consequently, not the most suitable for purposes of comparison. Probably the nearest approach to reliable figures for the distribution of crime in the various portions of the State may be made by taking, jointly, the commitments for trial on charges of indictable offences and the convictions on charges of offences triable summarily, there being, presumably, in connection with cases coming under both these headings, a sufficient amount of evidence as a rule to warrant the assumption of guilt. These figures, with regard to the number of offences, charged against all persons except aborigines, have been used in the following table for the year 1901, the population given for each Magisterial District being that in the district at the time of the Census then taken.

The percentages for the various districts present features of the greatest interest. Deductions must, however, be made with the utmost caution. The difference in the manner in which the administration of justice in each district individually is carried out must be borne in mind. The individual conceptions as to the best mode of dealing with offences vary greatly in different Magistrates; some act with great severity, others with leniency; the degree of ability and knowledge as to the proper interpretation and intention of the law varies also considerably in different individuals. These factors must necessarily influence the results of the year's Court Sessions to a very great extent, and must naturally, in many instances, have a direct bearing on the Criminal Statistics of the district. Furthermore, it would be unwise to attach much importance to the percentages for districts where the population is but scanty, as there the factor of chance is not always sufficiently neutralised by large numbers. But making due allowance for these facts, certain features are, nevertheless, so prominent in the figures of the last

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column of the table, that their importance cannot well be reasonably denied.

Magisterial District.	Population at Census.	Summary Convictions.	Commitments for Trial.	Convictions and Commitments for Trial.	Percentage to Population of District.
Ashburton	361	19	...	19	5·26
Blackwood	2,291	70	1	71	3·10
Broad Arrow	1,613	83	1	84	5·21
Broome	1,704	142	4	146	8·57
Collie	1,412	53	1	54	3·82
Coolgardie	8,315	455	14	469	5·64
Coolgardie, East ...	26,101	943	39	982	3·76
Coolgardie, North ...	4,710	273	5	278	5·92
Coolgardie, North-East	2,690	279	1	280	10·41
Dundas	1,593	77	...	77	4·83
Esperance	534	4	...	4	0·75
Fremantle	23,633	1,852	22	1,874	7·93
Gascoyne	863	77	...	77	8·92
Katanning	3,027	72	1	73	2·41
Kimberley, East ...	84	11	...	11	13·10
Kimberley Goldfield ...	156	1	...	1	0·64
Kimberley, West ...	276	10	1	11	3·99
Mount Margaret ...	4,291	321	7	328	7·64
Murchison	4,522	310	15	325	7·19
Murchison, East ...	1,582	216	2	218	13·78
Murray	3,618	49	3	52	1·44
Northam	4,447	404	10	414	9·31
Peak Hill	677	71	...	71	10·48
Perth	43,798	4,354	66	4,420	10·09
Phillips River	501	14	...	14	2·79
Pilbara	1,042	86	2	88	8·45
Plantagenet	6,194	251	1	252	4·07
Roebourne	1,041	85	...	85	8·17
Sussex	1,988	26	1	27	1·36
Swan	7,929	310	1	311	3·92
Toodyay	3,075	62	1	63	2·05
Victoria	6,276	219	7	226	3·60
Wellington	6,860	340	1	341	4·97
Williams	554	10	1	11	1·99
Yalgoo	780	17	..	17	2·18
Yilgarn	1,546	67	2	69	4·46
York	4,040	100	2	102	2·52
Total	184,124	11,733	212	11,945	6·49

One cannot help but notice that, with unfailing regularity, he percentages in the agricultural districts are particularly low, vhilst those in the more populous towns are, on the contrary, igh. In the Northern districts the proportions are also high, ossibly owing, to a great extent, to the presence in most of he Northern ports of a considerable admixture of persons of oloured race among the population. The percentages in the outhern coastal districts are, at any rate, in most cases, decidedly wer. It will be seen, too, that in districts where there was during e year a lesser degree of industrial progress, the percentages are

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mostly low. This is particularly noticeable in comparing the figures for various goldfields. Those for the East Coolgardie district certainly appear to form an exception to all the rules just observed. It must, however, not be forgotten that a large number of the offenders convicted in the Eastern Goldfields districts are committed to Fremantle prison. On being released, many of them are without the means to travel far, and naturally flock to the near capital, where they help to swell the percentage of criminally disposed persons.

A comparison, for the three years, 1901, 1902, and 1903, of the percentage of crime to population in each of the four great divisions of the State is afforded in the following table:—

Division (a.)	Mean Population.	Summary Convictions.	Commitments for Trial.	Convictions and Commitments for Trial.	Percentage to Population of Division.
1901.					
Metropolitan	68,991	6,206	88	6,294	9·12
South-Western	52,898	1,966	31	1,997	3·78
Central and Eastern	60,780	3,130	86	3,216	5·29
Northern and North-Western	5,644	431	7	438	7·76
Total	188,313	11,733	212	11,945	6·34
1902.					
Metropolitan	75,409	6,430	144	6,574	8·72
South-Western	57,809	2,300	45	2,345	4·06
Central and Eastern	66,379	3,050	85	3,135	4·72
Northern and North-Western	6,158	391	11	402	6·53
Total	205,755	12,171	285	12,456	6·05
1903.					
Metropolitan	81,245	6,833	127	6,960	8·57
South-Western	62,229	2,589	51	2,640	4·24
Central and Eastern	71,227	3,260	89	3,349	4·70
Northern and North-Western	6,577	646	17	663	10·08
Total	221,278	13,328	284	13,612	6·15

a. For definition of Territorial Divisions, *see* "Population and Vital Statistics," page 288.

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A remarkable tendency is noticeable in the above percentages to gradually decrease as far as the Metropolitan Division and the Central and Eastern Division are concerned, whilst the characteristic in the South-Western Division is that of increase. It would appear from this that for the three years under consideration, at Perth, at Fremantle, and on the Eastern Goldfields, the increase of the population had brought with it less of the criminal element than that in the agricultural districts of the South-West. The phenomenal increase of crime in the Northern and North-Western Division during 1903 is mainly traceable to a heavy list of offences among the coloured population at Broome.

Examinations of lunatics, as recorded in the various Courts during 1903, numbered 278, Perth accounting for 68 of these; Kalgoorlie for 34; Fremantle for 19; Bunbury for 20, and Coolgardie for 16.

Coroners' Inquests, according to the returns, were held on 231 males and 25 females, whilst 12 fire inquests were held resulting in 3 verdicts of arson, and 4 open verdicts, the remaining 5 fires being traced to accidents. In connection with the Coroners' Inquests it may be mentioned that the death registers in the Registrar General's office for the year 1903 account for 254 male and 30 female deaths, and it would thus appear that the returns supplied for some of the districts were incomplete. The majority of the deaths were traced to accidents, 11 males and 2 females having died from railway accidents, no less than 27 males and 3 females from drowning, and 50 from various mining accidents. Forty-five males and two females were recorded as having committed suicide.

Strength of Police Force.

With regard to the strength of the police force employed in the State on the 30th June, 1904, the report of the Commissioner furnishes the following figures: The total force numbered 491 men, including six inspectors; seven sub-inspectors; 26 sergeants; 26 corporals; 133 mounted constables; 251 foot constables; 26 water police, and 14 detectives. Horses were in use to the number of 306. The metropolitan police force alone, exclusive of suburbs, numbered 104. On the 30th June, 1903, the total force numbered 500. On 30th June, 1902, the number was 512, and 519 on the 30th June, 1901.

Gaols and Prisoners.

There were at the end of the year 1903 eleven proclaimed risons in Western Australia, of which the old Imperial prison at 'remantle is the principal one, and the one mainly used; and in ddition to them, not including police lock-ups, thirteen police gaols. he abolition of the native prison at Rottnest having at the time

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been decided upon, in consequence of which it was not in regular use during 1903, no prisoners' returns were compiled for that year. In January, 1904, it was made a penal out-station under the Comptroller General of Prisons. Besides Fremantle, the other ten proclaimed prisons are situated at Albany, Broome, Bunbury, Busselton, Carnarvon, Geraldton, Newcastle, Roebourne, Wyndham, and York. The police gaols are at Bridgetown, Collie, Coolgardie, Cue, Derby, Kalgoorlie, Leonora, Malcolm, Marble Bar, Menzies, Mt. Morgans, Perth, and Southern Cross. There is, taking the prisons and police gaols jointly, and including Rottnest as a prison, accommodation for 1,170 prisoners; the maximum number of prisoners for whom accommodation is provided in the prisons being 967, and in the police gaols 203. Cells intended for one prisoner only are provided in the prisons to the number of 420, and in the police gaols to the number of 14. The Fremantle prison alone has 372 cells for single prisoners, exclusive of punishment cells. In addition to these, it has an infirmary capable of accommodating 20 persons.

In the figures relating to the criminal population for 1903, all prisoners confined in the prisons and police gaols have been included. During the years previous to 1900, the Rottnest prisoners were not included in the figures published by the Inspector of Prisons, as the Rottnest Native Prison was not then under that officer's supervision. The totals, however, are not materially affected by this omission, as the Rottnest quota formed but a small proportion of the total prison population.

The number of prisoners of the State on the 31st December, 1903, was 730. Its increase during the preceding decade has certainly not proportionately kept pace with that of the population, for while the latter shows a nearly three-fold increase, the daily average number in prison only rose in the proportion of four to six, viz., from 388·74 in 1894 to 600·21 in 1903. The 730 prisoners in custody on the 31st December, 1903, comprised 212 male and four female aborigines under sentence, and two male aborigines who were committed for trial; the remaining number consisted of 465 male and 34 female prisoners under sentence, and 13 male prisoners who were remanded or committed for trial. A considerable number of these were completing sentences of penal servitude, the number, at the end of 1903, being 79, of whom 64 were of European extraction, 18 of them having originally been "Imperial convicts." The number of penal servitude prisoners is, of course, now rapidly diminishing. Forty-four of them, at the date mentioned, were employed on various public works, chiefly at Fremantle; 18 were ticket-of-leave holders in private employ, and 15 were conditional release holders. During 1903, four certificates of freedom, one conditional release, and three certificates of remission of sentence were issued to men undergoing this form of punishment, the latter being, as already stated, no longer included in the sentences now passed. One conditional release was cancelled during the year.

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Of the 3,912 separate commitments during 1903, only 3,571 were commitments of prisoners under sentence, the balance consisting of 28 debtors and 313 persons remanded or committed for trial. Fremantle alone received 1,446 of the total number of 3,912, and of these 1,204 only were prisoners under sentence. Out of the 3,599 commitments under sentence or for debt in all the prisons, 354 were male adult aborigines, 34 female adult aborigines, and 21 male and one female juvenile aborigines. The total number of females of European extraction committed was 419. Coloured male adults numbered 285, and male juveniles of European extraction, 35. As juveniles were recorded all those under 17 years of age.

The 3,599 commitments of prisoners under sentence or for debt represented 2,560 distinct prisoners. These, in addition to their first sentences, received during the year 325 simultaneous, and 714 separate subsequent sentences.

No less than 3,379 of the 3,599 sentences were "with hard labour." Of these, 40 were for five years or more; 304 for one year or more, but under five years; 298 for over three months, but under one year; 276 for three months; 750 for one month or more, but under three months; and 1,711 for under one month. Of the 220 sentences "without hard labour," which included commitments for debt, 42 were for more than three months; 34 for three months; 26 for one month or more, but under three months; and 118 for less than one month. It is worthy of note that the majority of sentences of one year and under five years were monopolised by the aborigines, as no less than 189 of the 304 sentences of this kind were passed on aboriginal male adults; and since the total number of sentences under which adult male aborigines were committed only amounted to 354, it will be seen that the one year or more sentence was inflicted in the greater number of cases of aboriginal crime. The cause is probably to be found in the now well-established knowledge that short sentences of imprisonment have no terror for the aboriginal native.

As regards the health of the prisoners during the year, the following figures are of interest. A total of 97 were admitted to the various sick wards and the daily average in hospital was 5.7[illegible], whilst the daily average number under casual medical treatment was 61.75. Three deaths occurred during the year.

Management of Prisons.—The Comptroller-General of Prisons has the control of all the proclaimed prisons in Western Australia.

The expenditure of the Prison Department during 1903 was £23,434. The earnings of the prisoners, so far as recorded during 1903, were estimated at £[illegible], of which sum the Fremantle Prison contributed £[illegible], that at Broome £[illegible], Roebourne Gaol £2,937, and Wyndham Gaol £[illegible]. A large portion of this amount was expended upon the domestic services of the gaols and another

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large part is represented by labour employed on additions, improvements, and repairs to gaol buildings, and in the manufacture of boots, clothing, furniture, tools, etc., for the use of the prisoners. The expenditure for the Fremantle Gaol alone, including Hamel Depôt, was £14,669; that for Broome, £1,907; for Roebourne, £1,745; for Wyndham, £2,258. The average expenditure per head of prisoners was £39 0s. 10d. The experimental out-station at Hamel provides beneficial employment for first offenders under short sentences and prisoners nearing the end of their terms of imprisonment.

Discipline in the prisons is maintained by sentences of solitary confinement, restriction of diet, and occasionally, if necessity arises, by floggings. The total number of floggings for offences committed during imprisonment, in the year 1903, was two. Other punishments for such offences numbered 471. Eight escapes of prisoners from within the prison occurred during the year, and 18 escapes of prisoners while employed beyond the gaol. The number of executions performed during the year was three.

Civil Law.

Supreme Court Business.—An estimate of the transactions in the Supreme Court of Western Australia, during the years 1902 and 1903, may be made from the following statement:—

		1902.		1903.	
		No.	Amount.	No.	Amount.
			£		£
Common Law ...	Writs commencing Actions ...	1,161	167,198	1,261	202,497
	Judgments signed and entered ...	509	75,376	516	77,982
	Writs of *fieri facias*	283	25,808	275	28,968
	Foreign judgments	8	1,495	10	11,572
	Causes tried before Judges:				
	With jury	106	...	91	...
	Without jury	191	...	165	...
	Appeals	25	...	235	...
	Cases stated	21	...	42	...
	Motions made in Court	121	...	43	...
	Bankruptcy applications made in Court before a Judge in Bankruptcy	39	...	32	...
Probate Business	Probates granted	187	410,448	210	629,667
	Letters of administration issued	160	77,609	189	73,404
In Bankruptcy	Bankruptcy Notices	33	...	30	...
	Creditors' Petitions	21	...	18	...
	Debtors' Petitions	55	...	61	...
	Total Assets	...	17,297	...	10,631
	Total Liabilities	...	51,548	...	34,952

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Supreme Court Business—continued.

		1902.		1903.	
		No.	Amount.	No.	Amount.
			£		£
BILLS OF SALE	Number registered and amount	747	1,610,569	905	2,410,455
	Satisfactions entered and amount	153	225,259	192	655,648
IN DIVORCE ...	Petitions for Dissolution of Marriage	11	...	21	...
	Petitions for Judicial Separation	3	...	3	...
	Petitions for Alimony	1	...	6	...
	Decrees for Dissolution of Marriage	8	...	10	...
	Decrees for Judicial Separation	—	...	1	...
	Decrees for Alimony	1	...	3	...
COMPANIES ...	Number Registered and Capital ...	39	567,900	53	688,260
FOREIGN COMPANIES	Number Registered	78	...	48	...
NEWSPAPERS ...	Number Registered	42	...	50	...
COMMISSIONS ...	Number Issued	17	...	14	...
FIRMS	Number Registered	351	...	379	...
ASSOCIATIONS	Number Incorporated	4	...	9	...
PRIVATE POWERS OF ATTORNEY	Number Deposited	80	...	75	...
	IN CHAMBERS.				
COMMON LAW AND EQUITY	Summonses issued	810	...	1,035	...
	Orders made	834	...	997	..
	Affidavits filed	1,194	...	1,450	...
	BANKRUPTCY ACT AMENDMENT ACT, 1898.				
SECTION 7 ...	Compositions ... ... No.	43	...	29	...
	Schemes of Arrangement No.	—	...	—	...
SECTION 8 ...	Deeds of Assignment ... No.	33	...	36	...
	CURATOR OF INTESTATES' ESTATES:				
INTESTATES' ESTATES	Number reported and amount ...	247	11,158	258	10,729

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The total amount of fees taken and duty collected in the Supreme Court rose from £2,566 in 1894, to £25,804 in 1903. The latter sum consisted of £5,992 Court Fees; £1,698 Bankruptcy Fees; £499 Fees taken by the Curator of Intestates' Estates; and Duties and various other charges, £17,615.

Local Courts.—In the Local Courts, during 1903, the sittings numbered 556, their total duration being 877 days. The number of plaints issued was 7,198; the aggregate amount recovered, £50,112; the aggregate amount of costs awarded to plaintiffs, £6,890, and to defendants, £750; the fees paid to revenue were £3,862, those to bailiffs amounted to £2,612; there were 20 appeals against Municipal and Road Board Rates.

Wardens' Courts.—In the 23 Wardens' Courts, during 1903, a total of 478 sittings were held; and 173 cases determined, not counting applications for leases, forfeiture of leases, or exemptions; the aggregate amount awarded was £6,099; the costs awarded to plaintiffs amounted to £464; to defendants, £131; the fees paid to revenue totalled £114, those paid to bailiffs, £455.

Return of Licenses Issued under "The Wine, Beer, and Spirits Sale Act" during the Year 1903.

Nature of License.	Renewals.	New issues.	Total.
Publicans' General	540	29	569
Provisional Certificates ...	...	19	19
Wayside House	188	20	208
Hotel	1	...	1
Wine and Beer	53	...	53
Spirit Merchants'	44	10	54
Gallon	278	41	319
Colonial Wine	44	9	53
Billiard Table	62	18	80
Packet	7	1	8
Eating, Boarding, and Lodging House	243	77	320
Club	15	7	22
Total	1,475	231	1,706

Summary of Crime Statistics for 1904.

In his Report for 1904, the Commissioner of Police says:

"In 1904, of the total number of offences brought to trial, the percentage of offences against the person was 4·43, in comparison with 5·93 in New South Wales and 3·69 in Victoria. For offences against person and property (such as assault and robbery, etc.) the percentage with us stands at ·60, as against ·98 in

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Victoria and ·55 in New South Wales. For offences against property only, the Western Australian records show a percentage of 9·52, as against 10·17 in New South Wales and 11·60 in Queensland. (The figures given for the Eastern States are for 1903, the latest available.) The percentage of charges of drunkenness to total population was 1·48 in this State, as against 1·52 in New South Wales and 2·22 in Queensland. It will be seen, therefore, that our crime returns compare very favourably with those of the more settled States of the Commonwealth. This is all the more surprising in view of the difference between the social conditions that obtain on the East and West coasts of Australia. A State supported to a great extent by a gold-mining industry would naturally attract a large leaven of the criminal class which, in other ways, gives evidence of its presence by the increase in the percentage of crime. Besides the attraction which gold exercises for him, the criminal is well aware that a floating population, comprising a preponderance of males, affords a shelter under which he can move about with less chance of detection and with a sense of comparative security. Taking these facts into consideration, I think we have reason to be more than satisfied with the work of our police; and I venture to say, until the country becomes more settled and populated, we can hardly expect better results."

From this it appears that a marked improvement is noticeable on the condition prevailing during the earlier years of the State's greatest industrial expansion.

With regard to the aboriginal natives, the Commissioner states:

"I am pleased to be able to say that the abuses caused by Asiatics and whites supplying natives with liquor are gradually disappearing, there being only 19 cases last year as against 42 the year before. The falling off in the number of cases is due in a great measure to the exertions of the police, who keep a strict and continuous watch on the suspected persons, consisting principally of the coloured section of the population while ashore during the lay-up season.

"Heretofore natives have been arrested and punished for tribal murders. As an alternative, I would suggest that when a tribal murder is reported, the police should make an inquiry and furnish a report embodying the result of their investigations, which could be forwarded to the Crown Law Department, whose officers would then be in a position to judge whether any further action may be necessary. In these matters natives are very often obeying the laws and following the customs of their own tribe, and care should be taken that no aboriginal is punished for an action which his native moral code does not deem an offence provided of course, such action does not prevent settlement by involving the destruction of property."

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The following table shows the number of offences charged against persons during 1904. Charges against aborigines and charges of lunacy are excluded from the figures, and where multiple charges were made, only the most serious offence has been recorded:—

Class of Offence.	Summarily convicted.		Committed for sentence.		Committed for trial.		Discharged, withdrawn, etc.		Total.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
Offences against the Person ...	286	24	2	...	52	5	276	17	616	44
Offences against Person and Property	6	...	2	...	60	3	18	1	86	4
Offences against Property only...	815	78	9	...	95	4	368	54	1,287	136
Forgery and Offences against Currency	...	...	2	...	16	...	3	...	21	...
Drunkenness	3,138	393	...	...	...	...	59	7	3,197	400
Other Offences against good order	4,588	320	...	...	4	...	477	34	5,069	354
Offences relating to carrying out laws	71	4	...	...	9	...	27	3	107	7
Offences relating to Revenue ...	667	37	...	...	...	...	241	20	908	57
Offences against public welfare	1,808	141	...	...	3	...	637	56	2,448	197
Total Offences	11,379	997	15	...	239	12	2,106	192	13,739	1,201

Similar figures relative to the aborigines are contained in the following statement:—

Class of Offence.	Summarily convicted.		Committed for sentence.		Committed for trial.		Discharged, withdrawn, etc.		Total.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
Offences against the Person	23	1	...	...	8	...	9	...	40	1
Offences against Property...	197	2	...	...	20	...	20	1	237	3
Drunkenness	49	29	...	...	...	...	1	2	50	31
Other Offences against good order	63	8	...	...	...	...	1	2	64	10
Offences relating to carrying out laws	11	...	...	...	...	...	1	...	12	...
Offences against public welfare	25	5	...	...	...	...	13	1	38	6
Total Offences ...	368	45	...	...	28	...	45	6	441	51

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The following particulars of cases dealt with in the Superior Courts during 1904 have been furnished by the Commissioner of Police:—

Offence.	Judgment for the Crown.	Judgment for the Prisoner.	Remanded.	*Nolle Prosequi.*	Total.
Murder	6	7	...	...	13
Manslaughter	2	6	...	...	8
Rape	3	3	...	1	7
Other against Person...	42	24	...	7	73
Larceny	28	16	...	4	48
Larceny in dwelling ...	7	2	...	10	19
Other against Property	101	26	2	13	142
Forgery and Uttering	13	2	...	4	19
Miscellaneous	11	8	2	4	25
Total	213	94	4	43	354

Of the total of 354 persons dealt with in the Superior Courts, 37 were aborigines, and of the others 306 were males and 11 females. Of the 213 against whom judgment was given for the Crown, 31 were aborigines, and of the others 180 were male and two female offenders.

There were, on the night of 31st December, 1904, in the gaols of Western Australia, 720 prisoners, viz., 371 white male and 25 white female prisoners, 70 coloured men, and 240 male and 1 female aborigines, all under sentence; and, in addition, 8 white male prisoners, 1 coloured man, and 4 male aborigines who were either on remand or awaiting trial. The total number of commitments of persons of all races to prison under sentence during 1904 was 3,583, representing a total of 2,544 distinct individuals.

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8.—WAGES AND PRICES.

Owing to the rapid increase of population, the cost of living has hitherto been somewhat high in towns, but is steadily diminishing. The wages of *general* domestic servants range from 8s. to 35s. per week. The following are the average rates of wages for labour:—Prædial, 15s. to £2 2s. per week; domestic (all kinds), 8s. to £3 per week.

Rates of Wages paid in Western Australia, compiled from the latest Returns under the provisions of the Industrial Statistics Act.

Occupations.	Period to which Rates of Wages apply.	In the settled South-Western Districts.			On the Goldfields.*		
		Highest.	Lowest.	Average.	Highest.	Lowest.	Average.
		£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Aerated Water Factory hands	Per week ...	2 10 0	0 17 6	2 0 0	4 0 0	2 0 0	3 10 0
Bakers	Do. ...	6 0 0	2 0 0	3 0 0	6 0 0	3 0 0	4 10 0
Barmaids †	Do. ...	4 0 0	1 0 0	1 10 0	3 0 0	1 10 0	2 5 0
Barmen	Do. ...	2 10 0	1 0 0	1 10 0	2 0 0	2 0 0	2 0 0
Blacksmiths	Do. ...	4 16 0	2 0 0	3 3 0	6 10 0	4 0 0	4 10 0
Boilermakers	Do. ...	4 4 0	2 14 0	3 12 0	6 10 0	4 10 0	4 10 0
Bookbinders	Do. ...	3 12 6	1 12 0	3 0 0	3 15 0	3 15 0	3 15 0
Bootmakers	Do. ...	3 15 0	2 5 0	2 15 0	...	...	—
Boundary Riders †	Do. ...	1 5 0	0 11 0	0 18 0	...	...	
Brewers	Do. ...	7 0 0	2 10 0	6 0 0	12 0 0	4 0 0	8 0 0
Bricklayers	Do. ...	4 4 0	3 12 0	3 18 0	6 0 0	4 10 0	5 0 0
Brickmakers	Do. ...	3 12 0	2 8 0	3 0 0	3 12 0	3 12 0	3 12 0
Bullock Drivers †	Do. ...	1 10 0	0 14 0	1 5 0	...	...	
Butchers	Do. ...	4 0 0	2 15 0	3 0 0	4 0 0	4 0 0	4 0 0
Cabinetmakers	Do. ...	4 4 0	1 10 0	3 0 0	...	...	
Candlemakers	Do. ...	2 10 0	1 7 6	2 5 0	...	...	
Carpenters	Do. ...	4 4 0	2 8 0	3 9 0	6 0 0	4 10 0	4 10 0
Carters	Do. ...	3 15 0	0 15 0	2 8 0	5 0 0	1 10 0	3 10 0
Coachmen †	Do. ...	2 0 0	0 15 0	1 5 0	2 15 0	1 10 0	2 0 0
Compositors	Do. ...	4 5 0	2 8 0	3 0 0	4 0 0	3 0 0	3 10 0
Cooks (male) †	Do. ...	4 10 0	1 5 0	2 10 0	4 10 0	1 0 0	3 0 0
Do. (female) †	Do. ...	3 0 0	1 0 0	1 10 0	2 10 0	1 10 0	2 0 0
Coopers	Do. ...	3 12 0	2 8 0	3 6 0	5 0 0	3 10 0	4 10 0
Cutters, Tailors'	Do. ...	6 0 0	2 10 0	4 10 0	7 0 0	3 0 0	5 0 0
Drapers (male)	Do. ...	5 0 0	2 5 0	2 15 0	6 0 0	2 0 0	3 10 0
Do. (female)	Do. ...	4 10 0	0 9 0	1 10 0	5 0 0	0 10 0	2 0 0
Dressmakers	Do. ...	2 10 0	0 15 0	1 5 0	2 15 0	1 0 0	1 15 0
Engine-drivers	Do. ...	4 4 0	2 2 0	3 0 0	5 10 0	2 0 0	4 10 0
Engine-fitters	Do. ...	4 4 0	2 14 0	3 6 0	6 10 0	4 10 0	4 10 0
Farm Labourers †	Do. ...	1 10 0	0 15 0	1 0 0	...		
Flour Millers	Do. ...	3 15 0	2 15 0	3 5 0	...		...
Gasfitters	Do. ...	4 10 0	2 14 0	3 3 0	...		...
General Labourers	Do. ...	3 12 0	1 10 0	2 8 0	4 10 0	1 10 0	3 10 0
General Servants (female) † ...	Do. ...	1 10 0	0 8 0	1 0 0	1 15 0	0 15 0	1 0 0
Glaziers	Do. ...	6 0 0	2 10 0	3 5 0	...		
Grocers	Do. ...	4 0 0	1 15 0	2 10 0	4 0 0	3 10 0	3 10 0
Hairdressers	Do. ...	3 0 0	2 10 0	2 15 0	4 0 0	4 0 0	4 0 0
Harnessmakers	Do. ...	3 0 0	2 12 6	2 15 0	...		...
Hod Carriers	Do. ...	3 12 0	2 8 0	2 14 0	4 10 0	3 0 0	3 10 0
Housemaids †	Do. ...	1 0 0	0 12 6	0 15 0	1 10 0	1 5 0	1 5 0
Ironmongers	Do. ...	4 5 0	2 0 0	2 15 0	4 0 0	4 0 0	4 0 0
Ironmoulders	Do. ...	4 0 0	2 8 0	3 6 0	7 0 0	4 10 0	5 0 0
Jewellers	Do. ...	4 5 0	2 5 0	3 5 0	...		
Joiners	Do. ...	4 4 0	2 8 0	3 9 0	6 0 0	4 10 0	4 10 0
Labourers (general)	Do. ...	3 12 0	1 10 0	2 8 0	4 10 0	1 10 0	2 10 0
Laundresses †	Do. ...	1 10 0	1 0 0	1 0 0	2 0 0	1 5 0	1 10 0
Lumpers	Do. ...	3 10 0	2 8 0	3 0 0	...	...	
Married Couples for Farms ...	Do. ...	2 10 0	1 10 0	1 15 0	...		
Masons	Do. ...	4 4 0	3 0 0	3 9 0	6 0 0	4 10 0	5 0 0

* Where no rates of wages are shown, either such employment on the Goldfields is not obtainable, or no returns as to wages paid have been received.

† In addition to the wages quoted, board and lodging are provided.

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Rates of Wages paid in Western Australia, compiled from the latest Returns under the provisions of the Industrial Statistics Act—continued.

Occupations.	Period to which Rates of Wages apply.	In the settled South-Western Districts.			On the Goldfields.*		
		Highest.	Lowest.	Average.	Highest.	Lowest.	Av'r'ge.
		£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d	£ s. d
Milliners	Per week	5 10 0	1 0 0	1 10 0	...	...	...
Millers, Flour	Do.	3 15 0	2 15 0	3 5 0	..	..	...
Miners, Gold	Do.	..	..	..	4 10 0	3 3 0	3 12 0
Nursemaids †	Do.	1 0 0	0 5 0	0 10 0	1 10 0	0 10 0	1 0 0
Orchard Hands	Do.	2 0 0	1 10 0	1 16 0	..	...	...
Painters	Do.	3 18 0	2 5 0	3 5 0	6 0 0	3 12 0	4 4 0
Parlour Maids †	Do.	1 0 0	0 12 6	0 15 0	1 10 0	1 5 0	1 5 0
Photographic Operators	Do.	3 10 0	3 10 0	3 10 0	...	..	...
Plasterers	Do.	4 4 0	3 12 0	3 18 0	6 0 0	4 10 0	4 16 0
Ploughmen	Do.	2 2 0	1 15 0	2 0 0	...	..	...
Plumbers	Do.	3 18 0	2 8 0	3 6 0	4 16 0	4 0 0	4 10 0
Polishers	Do.	3 12 0	2 2 0	2 14 0	...	...	...
Quarrymen	Do.	3 3 0	3 3 0	3 3 0	...	...	...
Retouchers	Do.	4 0 0	2 2 0	3 0 0	...	...	...
Saddle Makers	Do.	3 5 0	2 14 0	2 15 0	...	...	...
Sawyers (Forest)	Do.	4 0 0	2 11 0	3 6 0	..	..	...
Sawyers (Town)	Do.	3 6 0	2 8 0	3 0 0	4 0 0	4 0 0	4 0 0
Scullerymen †	Do.	1 10 0	0 15 0	1 0 0	1 10 0	1 0 0	1 5 0
Servants, General (female) †	Do.	1 10 0	0 8 0	1 0 0	1 15 0	0 15 0	1 0 0
Shearers	Per 100 sheep	1 5 0	1 0 0	1 5 0	...	...	...
Stockmen †	Per week	1 10 0	0 14 0	1 0 0	...		...
Stonemasons	Do.	4 4 0	3 0 0	3 9 0	6 0 0	4 10 0	5 0 0
Strikers (Blacksmiths')	Do.	3 0 0	1 10 0	2 8 0	3 10 0	1 15 0	3 0 0
Tailoresses	Do.	3 10 0	0 15 0	1 15 0	4 0 0	1 5 0	2 0 0
Tailors	Do.	5 10 0	2 0 0	3 10 0	7 0 0	2 5 0	4 0 0
Tanners	Do.	3 0 0	2 0 0	2 5 0	...	...	...
Turners, Metal	Do.	4 0 0	2 14 0	3 6 0	5 10 0	4 10 0	4 10 0
Turners, Wood	Do.	3 6 0	1 10 0	3 0 0	...	...	...
Upholsterers	Do.	3 12 0	2 15 0	3 0 0	...	...	...
Waiters †	Do.	2 0 0	1 0 0	1 5 0	2 0 0	1 10 0	1 15 0
Waitresses †	Do.	1 10 0	0 12 6	1 0 0	2 0 0	1 5 0	1 10 0
Wharf Labourers	Do.	3 10 0	2 8 0	3 0 0	...	...	...
Wheelwrights	Do.	3 15 0	2 8 0	3 0 0	5 0 0	4 0 0	4 10 0
Government Railway Servants throughout the State ‡—							
Gangers	Do.	3 0 0	2 14 0	2 17 0	...	...	...
Guards	Do.	3 12 0	2 11 0	3 0 0	...	...	...
Labourers	Do.	2 14 0	2 2 0	2 8 0	...	...	...
Locomotive Engine-drivers	Do.	4 10 0	3 6 0	3 19 0	..	...	...
Do. Firemen	Do.	3 0 0	2 8 0	2 15 6	...	...	...
Do. Cleaners	Do.	2 5 0	1 16 0	2 0 0	...	...	...
Porters	Do.	3 0 0	1 19 0	2 8 0	...	...	...
Shunters	Do.	3 0 0	2 5 0	2 12 6	...	...	...
Signalmen	Do.	3 12 0	2 2 0	2 17 0	...	...	...

* Where no rates of wages are shown, either such employment on the Goldfields is not obtainable, or no returns as to wages paid have been received.

† In addition to the wages quoted, board and lodging are provided.

‡ Gangers and Repairers whilst in Goldfields Areas are paid 1s. per working day extra; other employees are given 7s. per week Goldfields Allowance.

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Monthly Wholesale Prices at Perth of the principal kinds of Agricultural, Orchard, and Farmyard Produce during 1903.

Description of Produce.	January.		February.		March.		April.		May.		June.	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Grain.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Barley ... ... per bushel	0 4 0	0 4 3	0 4 0	0 4 6	0 4 3	0 5 6	0 4 10	0 5 6	0 4 10	0 5 6	0 4 10	0 5 6
Maize... ... ... do.	0 7 6	0 7 9	0 6 9	0 7 9	0 6 9	0 7 0	0 6 9	0 7 6	0 7 0	0 7 6	0 6 0	0 7 6
Wheat ... ... do.	0 6 3	0 6 8	0 6 6	0 6 9	0 6 6	0 6 9	0 6 0	0 6 9	0 6 6	0 6 9	0 6 3	0 6 9
Oats ... ... do.	0 4 2	0 4 6	0 4 2	0 4 6	0 4 3	0 4 6	0 3 10	0 4 6	0 3 10	0 4 6	0 3 6	0 4 6
Mill Produce.												
Bran ... ... per ton	10 0 0	11 10 0	10 0 0	10 15 0	8 15 0	10 5 0	8 10 0	9 5 0	8 10 0	9 0 0	7 10 0	9 0 0
Flour, local... ... do.	13 5 0	14 5 0	13 10 0	13 15 0	13 10 0	13 15 0	13 0 0	13 15 0	13 0 0	13 10 0	13 0 0	13 10 0
Flour, imported ... do.	13 10 0	14 10 0	13 10 0	15 0 0	14 10 0	14 15 0	14 0 0	15 0 0	14 10 0	15 0 0	14 10 0	15 0 0
Pollard ... ... do.	10 10 0	11 15 0	10 5 0	11 0 0	9 15 0	10 10 0	9 15 0	10 10 0	10 0 0	10 10 0	8 10 0	10 10 0
Farm Produce.												
Chaff ... ... per ton	5 10 0	7 10 0	5 10 0	8 0 0	6 0 0	8 0 0	6 10 0	8 15 0	7 0 0	8 15 0	7 0 0	8 12 6
Hay ... ... do.	...	...	...	...	...	...	...	...	...	...	...	...
Potatoes ... ... do.	6 10 0	8 15 6	7 0 0	14 0 0	7 10 0	13 0 0	6 10 0	10 0 0	6 10 0	9 0 0	6 15 0	11 10 0
Onions, imported ... do.	9 0 0	10 0 0	8 10 0	10 0 0	5 5 0	9 10 0	7 0 0	8 0 0	7 0 0	7 10 0	6 10 0	7 10 0
Onions, local ... do.	...	...	...	...	...	...	...	...	...	...	...	...
Straw Chaff ... do.	5 0 0	5 10 0	4 7 6	5 5 0	4 0 0	4 17 6	3 15 0	4 2 6	5 17 6	5 17 6	5 0 0	6 5 0
Dairy Produce.												
Bacon ... ... per lb.	0 1 0	0 1 1	0 0 10½	0 1 1	0 0 10½	0 1 0	0 0 10½	0 1 0	0 0 10½	0 1 0	0 0 10½	0 1 0
Butter, local ... do.	0 1 2	0 1 6	0 1 3	0 1 6	0 1 3	0 1 6	0 1 3	0 1 6	0 1 3	0 1 6	0 1 3	0 1 6
Cheese ... ... do.	0 0 9½	0 0 11	0 0 9½	0 0 11	0 0 9½	0 0 10	0 0 9½	0 0 10	0 0 9½	0 0 10	0 0 9½	0 0 10
Eggs, local ... ... per dozen ...	0 1 5	0 1 11	0 1 7	0 1 11½	0 1 8	0 2 6	0 1 8	0 3 4	0 2 1	0 3 2	0 2 2	0 3 1
Hams ... ... per lb.	0 1 2	0 1 4	0 1 0	0 1 4	0 1 0	0 1 3	0 1 0	0 1 3	0 1 0	0 1 3	0 1 0	0 1 3
Lard ... ... do.	...	...	...	...	...	...	...	...	...	...	0 0 6½	0 0 6½
Pork ... ... do.	0 0 7½	0 0 8	0 0 6¾	0 0 8	0 0 6¾	0 0 8½	0 0 6¾	0 0 8½	0 0 6¾	0 0 8½	0 0 6¾	0 0 8½
Poultry.												
Ducks ... ... per pair	0 4 6	0 9 0	0 4 6	0 7 6	0 5 0	0 8 9	0 5 6	0 9 3	0 10 0	0 13 0	0 8 0	0 10 6
Fowls ... ... do.	0 5 0	0 7 6	0 3 0	0 6 6	0 3 0	0 7 3	0 3 0	0 6 9	0 3 0	0 8 9	0 3 0	0 8 6
Geese .. ... . do.	0 13 6	0 15 0	0 10 0	0 14 0	0 10 0	0 12 6	0 10 0	0 13 6	0 10 6	0 15 0	0 10 0	0 13 0
Turkeys, Gobblers do.	1 2 0	1 7 6	1 0 0	1 7 6	0 10 0	1 7 6	0 12 6	1 7 6	0 12 6	1 1 6	0 12 0	1 6 6
Turkeys, Hens . do. . ..	0 9 0	0 13 0	0 9 0	0 11 0	0 7 6	0 11 0	0 7 6	0 14 0	0 7 0	0 15 0	0 8 0	0 13 6
Pigeons ... .. do.	0 1 9	0 2 3	0 1 0	0 2 0	0 1 0	0 1 3	0 1 0	0 1 3	0 1 0	0 1 6	0 1 0	0 2 4
Fruit.												
Apples, local per case .	0 15 0	1 4 0	0 15 0	1 2 0	0 3 6	0 16 6	0 4 6	0 15 0	0 5 6	0 14 6	0 7 6	0 14 6
Apples, imported do.	0 7 6	1 2 0	0 4 0	0 14 0	0 4 0	0 15 6	0 6 0	0 13 0	0 6 6	0 12 6	0 6 6	0 14 0
Apricots do.	0 15 0	1 10 0	0 11 0	1 2 0								
Bananas .. ... do.	0 10 0	1 6 0	0 2 6	1 6 0	0 2 6	1 2 0	0 3 6	1 2 0	3 6	1 6 0	0 3 6	1 3 0

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Monthly Wholesale Prices at Perth of the principal kinds of Agricultural, Orchard, and Farmyard Produce—continued.

Description of Produce.	July.		August.		September.		October.		November.		December.	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Grain.												
Barley ... ... per bushel	0 5 0	0 5 6	0 5 0	0 5 6	0 5 0	0 5 6	0 5 0	0 5 6	0 5 0	0 5 6	0 5 0	0 5 6
Maize ... ... do.	0 5 6	0 6 6	0 5 6	0 6 0	0 5 6	0 6 0	0 5 6	0 6 0	0 5 6	0 6 0	0 5 6	0 6 6
Wheat ... ... do.	0 6 3	0 6 6	0 6 3	0 6 6	0 5 9	0 6 0	0 5 8	0 6 9	0 5 6	0 6 3	0 4 9	0 6 3
Oats ... ... do.	0 3 6	0 3 9	0 3 6	0 3 9	0 3 6	0 3 9	0 3 6	0 3 9	0 3 3	0 3 9	0 3 0	0 3 9
Mill Produce.												
Bran ... ... per ton	7 10 0	8 10 0	7 5 0	8 0 0	7 5 0	7 15 0	7 0 0	7 15 0	7 0 0	7 10 0	7 0 0	7 10 0
Flour, local ... do.	13 0 0	13 10 0	13 0 0	13 10 0	13 0 0	13 10 0	13 5 0	13 10 0	13 5 0	13 10 0	13 0 0	13 10 0
Flour, imported ... do.	14 10 0	15 0 0	14 10 0	15 0 0	14 10 0	15 0 0	14 10 0	15 0 0	14 10 0	15 0 0	14 10 0	15 0 0
Pollard ... ... do.	7 10 0	9 0 0	7 5 0	8 0 0	7 5 0	8 5 0	7 5 0	8 5 0	7 5 0	8 5 0	7 5 0	8 5 0
Farm Produce.												
Chaff ... ... per ton.	6 10 0	8 12 6	6 10 0	8 12 6	5 10 0	7 10 0	4 10 0	7 10 0	4 5 0	7 0 0	4 5 0	6 15 0
Hay ... ... do.	...	...	...	...	...	...	...	...		...	...	...
Potatoes ... ... do.	8 10 0	14 0 0	8 10 0	14 0 0	9 10 0	16 10 0	4 0 0	16 0 0	4 0 0	15 0 0	5 10 0	14 0 0
Onions, imported ... do.	6 5 0	7 0 0	5 15 0	6 15 0	5 10 0	6 12 6	5 10 0	6 12 6	5 10 0	7 0 0	...	...
Onions, local ... do.	...	...	...	...	...	...	...	...	5 10 0	12 10 0	5 10 0	10 10 0
Straw Chaff ... do.	4 5 0	4 15 0	3 5 0	5 2 6	4 15 0	4 15 0	...	...	1 7 6	1 7 6	3 2 6	3 2 6
Dairy Produce.												
Bacon ... ... per lb.	0 0 10½	0 1 0	0 0 10	0 1 0	0 0 10	0 1 0	0 0 9½	0 1 0	0 0 8½	0 1 0	0 0 8½	0 1 0
Butter, local ... do.	0 1 3½	0 1 3½	0 1 0½	0 1 3½	0 1 0½	0 1 4	0 0 8	0 1 4	0 0 9	0 1 3	0 0 9	0 1 2
Cheese ... ... do.	0 0 9½	0 0 10	0 0 9½	0 0 10½	0 0 9½	0 0 10½	0 0 9½	0 0 11½	0 0 9½	0 0 11½	0 0 9½	0 0 11½
Eggs, local ... ... per dozen	0 2 0	0 2 11	0 1 3	0 2 5	0 1 2	0 1 6	0 1 3	0 1 6½	0 1 3½	0 1 7	0 1 3½	0 1 10
Hams ... ... per lb.	0 1 0	0 1 3	0 1 0	0 1 3	0 1 0	0 1 3	0 1 0	0 1 3	0 0 11	0 1 3	0 0 11	0 1 3
Lard ... ... do.	0 0 6	0 0 6	0 0 6	0 0 6	0 0 6	0 0 6	0 0 6	0 0 6	...	0 0 6	0 0 6	0 0 6
Pork ... ... do.	0 0 6½	0 0 8½	0 0 6½	0 0 8½	0 0 6½	0 0 8½	0 0 5	0 0 9½	...	...	0 0 5½	0 0 9
Poultry.												
Ducks ... ... per pair	0 7 0	0 10 6	0 8 0	0 10 3	0 8 6	0 11 3	0 6 6	0 11 0	0 6 9	0 10 6	0 7 3	0 9 6
Fowls ... ... do.	0 3 0	0 8 3	0 3 0	0 13 6	0 3 0	0 9 6	0 3 9	0 9 6	0 3 6	0 9 6	0 3 0	0 8 0
Geese ... ... do.	0 10 0	0 16 0	0 12 6	0 16 6	0 12 6	1 0 6	0 12 0	0 15 0	0 12 6	0 15 0	0 12 0	1 1 0
Turkeys, Gobblers do.	0 14 6	1 5 0	0 15 0	1 9 0	1 7 0	1 10 0	0 18 0	1 13 0	1 0 0	1 10 0	1 0 0	2 4 0
Turkeys, Hens do.	0 10 0	0 16 6	0 10 0	0 16 6	0 10 0	0 17 0	0 10 0	0 17 6	0 10 0	0 17 6	0 10 0	2 0 0
Pigeons do.	0 1 9	0 2 6	0 1 9	0 2 3	0 2 0	0 2 9	0 1 9	0 2 6	0 2 0	0 2 6	0 1 9	0 2 6
Fruit.												
Apples, local per case	0 8 0	0 19 0	0 8 6	1 0 0	0 8 6	1 1 0	0 8 6	0 19 0	0 8 6	1 3 6	0 15 0	1 2 6
Apples, imported do.	0 7 6	0 16 6	0 6 0	0 16 6	0 6 0	0 18 0	0 8 6	0 15 0	0 8 6	1 0 0	0 8 0	1 5 0
Apricots do.	...	...	...	...	...	...			0 12 0	0 12 0	0 11 6	1 12 0
Bananas do.	0 3 0	1 0 0	0 7 6	1 2 0	0 6 0	1 2 0	0 6 0	1 0 0	0 12 0	1 4 0	0 12 0	1 4 0

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9.—NEWSPAPERS.

The State is well supplied with newspapers, many of which are of a high standard. The following is a list prepared by the Librarian of the Victoria Public Library, Perth, those included being newspapers in course of publication on the 31st December, 1904, and copies of which have been received at the Library:—

No.	Name.	Where Published.	When Published.	Price.
1	Albany Advertiser	Albany	Wed. and Sat.	1d.
2	Blackwood Chronicle and South-Western Mining News	Greenbushes	Saturday	3d.
3	Bunbury Herald	Bunbury	Mon., Wed, and Fri.	1d.
4	Civil Service Journal	Perth	Monthly	a
5	Collie Miner	Collie	Saturday	1d.
6	Commercial	Fremantle	Monthly	6d.
7	Coolgardie Miner	Coolgardie	Daily	1d.
8	Daily News	Perth	Daily	1d.
9	Day Dawn Chronicle	Day Dawn	Wed. and Sat.	3d.
10	East Murchison News	Lawlers	Friday	6d.
11	Eastern Districts Chronicle	York	Saturday	3d.
12	Education Circular	Perth	Monthly	Free. (official.)
13	Evening Star	Boulder	Daily	1d.
14	F. Z. Review	Perth	Monthly	3s. 6d. p.a.
15	Fremantle Mail	Fremantle	Daily	1d.
16	Geraldton Advertiser	Geraldton	Mon., Wed., Fri.	2d.
17	Geraldton Express and Murchison and Yalgoo Goldfields Chronicler	Geraldton	Friday	6d.
18	Government Gazette	Perth	Friday	5s. p.a.
19	Great Southern Herald	Katanning	Saturday	3d.
20	Guardian	Claremont	Saturday	1d.
21	Journal of the Department of Agriculture	Perth	Monthly	3d.
22	Kalgoorlie Miner	Kalgoorlie	Daily	1d.
23	Kookynie Press	Kookynie	Wed. and Sat.	1d.
24	Malcolm Chronicle	Malcolm	Friday	3d.
25	Morgans and Laverton Mercury	Laverton	Friday	3d.
26	Morgans Courier	Morgans	Wed. and Sat.	1d.
27	Morning Herald	Perth	Daily	1d.
28	Mount Leonora Miner	Mount Leonora	Wed. and Sat.	3d.
29	Mount Magnet Miner	Mount Magnet	Saturday	3d.
30	Murchison Advocate	Cue	Saturday	3d.
31	Murchison Times and Day Dawn Gazette	Cue	Tues., Thurs., & Sat.	3d.
32	Narrogin Advocate	Narrogin	Wed. and Sat.	3d.
33	Newcastle Herald	Newcastle	Saturday	3d.
34	Norseman Times	Norseman	Tues. and Fri.	3d.
35	North Coolgardie Herald	Menzies	Wed. and Sat.	1d.
36	Northam Advertiser	Northam	Wed. and Sat.	1d.
37	Pilbarra Goldfields News	Marble Bar	Saturday	6d.
38	School Paper	Perth	Monthly	1d.
39	Southern Cross Times	Southern Cross	Saturday	3d.
40	Southern Times	Bunbury	Tues., Thurs., & Sat.	1d.
41	Spectator	Perth	Saturday	1d.
42	Sun	Kalgoorlie	Sunday	3d.
43	Sunday Times	Perth	Sunday	3d.
44	Swan Express	Midland Junction	Saturday	1d.
45	Taxation	Perth	Monthly	1½d.
46	Truth	Perth	Saturday	3d.
47	W.A. Baptist Monthly	Perth	Monthly	1d.
48	W.A. Record	Perth	Saturday	3d.
49	West Australian	Perth	Daily	1d.
50	West Australian Church News	Perth	Monthly	3s. 6d. p.a.
51	West Australian Fanciers' Journal	Perth	Monthly	3d.
52	West Australian Farmers' Gazette	Perth	Monthly	3s. 6d. p.a.
53	West Australian Freemason	Perth	Monthly	6d.

a Issued to members of the Civil Service Association.

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Newspapers—continued.

No.	Name.	Where Published.	When Published.	Price.
54	West Australian Mining, Building, and Engineering Journal	Perth	Saturday	6d.
55	Western Argus	Kalgoorlie ...	Tuesday	6d.
56	Western Australian Racing Calendar...	Perth	Monthly	1s.
57	Western Australian Railway Gazette	Perth	Monthly	1d.
58	Western Mail	Perth	Saturday	6d.
59	Western Temperance News ...	Perth	Monthly	1d.
60	Westralian Worker	Kalgoorlie ...	Friday	1d.

During the preceding year, 5 newspapers ceased publication, whilst 8 new ones were started. The number existing at the end of the year was 60. The number for which each of the various towns possessing newspapers was responsible may be seen hereunder:—

Town.	When issued.					
	Daily.	Three times a week.	Twice a week.	Weekly.	Monthly.	Total.
Albany	...	...	1	...	...	1
Boulder	1	...	...	...	...	1
Bunbury	...	2	...	...	...	2
Claremont	...	...	...	1	...	1
Collie	...	...	...	1	...	1
Coolgardie...	1	...	...	...	...	1
Cue	...	1	...	1	...	2
Day Dawn	...	...	1	...	...	1
Fremantle	1	...	...	...	1	2
Geraldton	...	1	...	1	...	2
Greenbushes	...	...	...	1	...	1
Kalgoorlie	1	...	...	3	...	4
Katanning...	...	...	...	1	...	1
Kookynie	...	...	1	...	...	1
Laverton	...	...	...	1	...	1
Lawlers	...	...	...	1	...	1
Malcolm	...	...	...	1	...	1
Marble Bar	...	...	...	1	...	1
Menzies	...	...	1	...	...	1
Midland Junction ...	...	...	...	1	...	1
Morgans	...	...	1	...	...	1
Mount Leonora	...	...	1	...	...	1
Mount Magnet	...	...	...	1	...	1
Narrogin	...	...	1	...	...	1
Newcastle	...	...	...	1	...	1
Norseman	..	...	1	...	...	1
Northam	...	...	1	...	...	1
Perth	3	...	...	7	14	24
Southern Cross	...	...	...	1	...	1
York	...	...	...	1	...	1
Total	7	4	9	25	15	60

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The increase in the number of Western Australian publications during the past decade is shown by the following figures:—

Year.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.
Number ...	26	33	48	39	41	50	53	55	57	60

10.—PUBLIC HOLIDAYS.

Civil Service Holidays.

New Year's Day	January 1
Good Friday.	
Easter Eve.	
Easter Monday.	
Foundation of the Colony	June 1*
Proclamation Day	October 21*
King's Birthday	November 9*
Christmas Day	December 25
Boxing Day	December 26

Bank Holidays.

Good Friday.
Easter Eve.
Easter Monday.
New Year's Day.
*26th Jan. (Australian Anniversary)
*1st June.
*3rd June (Prince of Wales' Birthday).
*9th August (Coronation Day).
*21st October.
*9th November.
Christmas Day.
26th December.

The Governor has power to proclaim any special day as a bank holiday.

* Whenever any of these holidays fall upon a day other than a Monday, the following Monday is observed as a holiday instead of such day.

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PART XII.—PUBLIC WORKS AND INSTITUTIONS.

1.—HARBOUR WORKS.

(From particulars supplied by the Engineer-in-Chief.)

FREMANTLE HARBOUR WORKS.

The Fremantle Harbour Works, one of the most important works ever undertaken in Western Australia, were commenced in 1892, Lady Robinson, the wife of the late Sir W. C. F. Robinson, G.C.M.G., then Governor of the Colony, tipping the first truck of stone into the North Mole, in the presence of a large and representative gathering, on the 16th November in that year.

The scheme of works, which has since been in active progress, was designed by, and until his death, in 1902, carried out under the direction of the Engineer-in-Chief for the State, the late Mr. C. Y. O'Connor, M. Inst. C.E., C.M.G., and since under his successors in that office, Mr. C. S. R. Palmer, M. Inst. C.E., and Mr. James Thompson, B.E., M. Inst. C.E. It has aimed at forming a safe and commodious harbour within the mouth of the Swan River, which will admit vessels of any burthen at all states of the tide, and thus transfer the work of the Port from the roadstead and its jetties to quays and goods sheds on the river banks.

The following principal features have characterised the scheme:—

(*a.*) The throwing out of two Ocean Moles from the North and South heads, respectively, of the River Estuary, to protect the entrance:

(*b.*) The blasting and dredging of a Channel 450ft. wide, and having a depth of 30ft. at low water, through the Rock Bar which formerly crossed the whole width of the Estuary, and which, when the works were commenced, was mostly awash at low water:

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(*c.*) The dredging out, to a depth of 30ft. at low water, of an inner basin, about three-quarters of a mile in length, and 1,400ft. in width, between Timber Quays constructed along both sides:

(*d.*) The Quay on the North side has a Spur Jetty running obliquely from its face, a distance of 400ft. into the Inner Basin.

The length of quayage provided for within the basin is about 10,800ft., of which 5,475ft. is on North side, and 5,325ft. on South side.

There is also a wharf along North Mole 1,000ft., and along South Mole 300ft.

(*e.*) The reclamation of about 54 acres of Quay and Warehouse space on the South side of the river, and of about 20 acres on the North side, making about 74 acres in all:

(*f.*) The levelling down of Arthur's Head, over most of its extent, to form additional space for railway sidings and goods sheds, etc.

It is also proposed to construct a graving dock and slip.

The Moles.

The Moles have been built on the "Pierres Perdues" system, the stone used being limestone, sandstone, and granite. The limestone and sandstone, with the exception of a comparatively small quantity of similar stone from Arthur's Head, was brought from the quarries at Rocky Bay, about 2½ miles up the Swan River from its mouth. The quarries are connected by railway lines to both Moles. The line to the South Mole crosses the river by a bridge built alongside the previously existing railway bridge, which, while in the first instance it served for passage of the stone trains, was designed to ultimately form part of the intended duplication of the main line from Fremantle to Perth, to which use it is now applied, the Mole having been completed.

The granite was used in the last 200 feet at the extreme end of the North Mole, and as a coating for the northern slope of the extension, and was brought from the Collie and Darlington Quarries.

North Mole.—This Mole was commenced in November, 1892. It was originally intended that it should extend out from Rous Head for 2,934ft.; but in January, 1895, when that length had been attained, it was decided to further extend it to a total length of 3,450ft., terminating there in a rounded head, faced with

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selected stone, which length was attained in November, 1895. Here the top of the Mole stands about 12ft. above the highest recorded or observed tide, the height above same at shore end being 10ft. The depth of water alongside, at the ocean end, is 28ft. at low water.

The width of the Mole on top, at the shore end, is about 30ft., and at the ocean end, exclusive of the rounded head, about 52ft.

The slope on the North, or exposed side, throughout is protected with the largest and heaviest stone obtainable from the quarries, varying from about 12 to 20 tons in weight, having a batter at present of about 2 to 1; the slope on the South side having a batter of about 1½ to 1.

A parapet, in the shape of a rubble mound, has been put along the North side of this Mole, increasing in height and width from the shore end to the ocean end.

As regards the North Mole and its present top widths and batters, the original design was for a uniform top width of 30ft., and this will probably result in due course by the gradual flattening out of the North slope (through the wave action induced by the winter seas from North to North-West), proportionately as the depth of water increases; so that ultimately the Mole will probably assume the uniform top width of 30ft., the slope at the ocean end flattening out to an average of about 3 to 1, and at shore end remaining at about 2 to 1 as at present.

About 575,277 cubic yards of rubble stone, measured *in situ*, were deposited up to the 31st December, 1898, at an average total cost per cubic yard of 3s. 6½d., the original estimate being 4s. per cubic yard.

A further extension of 1,350ft. having been authorised, a commencement was made in July, 1899, to tip the stone beyond the 3,450ft. length; and this section, together with a parapet 12ft. high around the bulb head, at the extreme end, was completed in December, 1902, making a total length of Mole of 4,800ft.

In the construction of this extension 476,753 tons of stone were tipped; and of this quantity 377,135 tons were obtained from the Rocky Bay Quarries and tipped for a total cost of £92,312, or an average cost of 58·75 pence per ton.

In July, it being found necessary to utilise a heavier class of stone for protecting the Mole from the winter gales, a supply of this material, sufficient for immediate requirements, was obtained from the Collie quarry. The total quantity of Collie stone tipped at the Mole was 2,880 tons, for a cost of £1,736, an average price of 144·67 pence per ton.

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In September, new granite quarries at Darlington having been opened up, the additional stone necessary to complete the extension was obtained. The total quantity of Darlington stone tipped at the Mole was 99,618 tons for a cost of £29,579, an average price of 71·26 pence per ton.

A breakwind, in the form of an embankment, composed of 20,202 cubic yards of quarry refuse, faced with stone on both sides, has been constructed along the low-lying headland at the base of the North Mole, known as Rous Head, for a length of 2,200ft. to a height of 30ft. above low water mark. On the top of this has been erected an open picket fence 15ft. in height, as a further protection to the inner harbour from the North-Westerly gales.

As the North Beach, which is a narrow neck of sand dunes resting upon a rock shelf at about low water level, and connecting with the mainland Rous Head, also all composed of rock, showed signs of weakness, it has been protected from the sea by an embankment faced with rubble stone.

South Mole.—This was commenced in August, 1894, and extends out from Arthur's Head for 2,040ft., terminating in about 24ft. of water at low tide. It was at first slowly pushed out with the material obtained from the levelling down of Arthur's Head. In November, 1895, however, on the completion of the North Mole, stone trains from the Rocky Bay Quarries commenced running to this Mole, which then advanced much more rapidly, and reached its ultimate length of 2,040ft. on 19th August, 1897. The width on top is about 25ft. for the first 1,100ft. of its length, and thence it increases gradually to a width of 40ft. at the commencement of the rounded head. The slopes on both sides are about 1¼ to 1. The islands to the South and South-West form a natural breakwater against storms from those quarters, and the North Mole serves as a protection from the North and North-West gales; so that less resisting power is required than in the case of the North Mole; and although it has been subjected to very severe gales, no settlement has taken place, nor has any expenditure been necessary for maintenance.

During 1902 the extreme end and about 150 feet back on each side were topped and faced with granite in preparation for a cast-iron lighthouse, which was erected during June, 1903.

Removal of the Bar.

The Bar originally was a long rolling ridge of rock, principally coralline limestone and sandstone, which, across the mouth of the river, showed a broad crest rising to low water level.

Blasting.—Blasting operations were commenced in July, 1894, and have been carried on successfully from temporary removable

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stages, the holes being drilled by hand labour. Up to 30th June, 1904, a total of 1,503,099 cubic yards of rock had been blasted, at an average cost of 32·36 pence per cubic yard. The cost of blasting was considerably increased owing to the proximity of the town of Fremantle preventing large charges being used or a number of charges being fired simultaneously.

It has on occasions been found necessary to use torpedoes to shatter several isolated patches of rock, more particularly in the entrance channel.

Dredging.—Dredging the blasted rock was commenced in December, 1894, with the bucket-dredge "Fremantle," specially designed for these works by Messrs. Coode, Son, and Matthews. This dredge has been found to be a thoroughly satisfactory machine. Up to the 3rd May, 1904, when the dredge was put out of commission, she had lifted and carried to sea a total of 1,256,514 cubic yards of rock, at an average cost, allowing for depreciation and interest, of 17·00 pence per cubic yard; also 894,632 cubic yards of sand, at an average cost, allowing for depreciation and interest, of 11·59 pence per cubic yard.

The bucket-ladder dredge "Parmelia," similar in design to the "Fremantle," but somewhat more powerful, commenced work in December, 1896, since which date she has been engaged in two methods of working, viz., dredging into her own hoppers, and into hopper barges moored alongside; she has lifted into her own hoppers and carried out to sea 629,727 cubic yards of rock, at an average cost, allowing for depreciation and interest, of 16·47 pence per cubic yard, and into hopper barges 132,506 cubic yards of rock, which have been towed by tug and discharged at sea, at an average cost, allowing for depreciation and interest, of 19·57 pence per cubic yard; giving a total of 739,785 cubic yards of rock, at an average cost, allowing for depreciation and interest, of 16·96 pence per cubic yard. She has also lifted into her own hoppers 1,116,784 cubic yards of sand, at an average cost of 9·12 pence per cubic yard, and into hopper barges 297,869 cubic yards of sand, at an average cost of 14·92 pence per cubic yard, giving a total of 1,414,653 cubic yards of sand, at an average cost, allowing for depreciation and interest, of 10·20 pence per cubic yard.

A "Priestman" grab-dredge was employed in removing rock and sand in positions inaccessible to the other dredges. Since August, 1894, to September, 1900, when the dredge was transferred to Bunbury for similar work there, she lifted 17,482 cubic yards of rock, at an average cost, allowing for depreciation and interest, of 51·98 pence per cubic yard, and 114,754 cubic yards of sand, at an average cost, allowing for depreciation and interest, of 17·89 pence per cubic yard, or a total expenditure of £12,344 19s. 3d.

The works inside the Bar have for some few years past assumed definite shape. The sand-pump dredge "Premier" commenced work

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in February, 1896, excavating the Swinging Basin, and reclaiming the foreshore on the South side. The total amount of sand removed and deposited at sea by this dredge has been 3,536,375 cubic yards, at an average cost, allowing for depreciation and interest, of 5·30 pence per cubic yard; 2,957,792 cubic yards of this was carried to sea in her own hoppers, at an average cost of 5·11 pence per cubic yard, and 578,583 cubic yards was discharged into hopper barges, towed to sea and discharged for 6·28 pence per cubic yard. In addition to this, 243,119 cubic yards, at an average cost of 16·00 pence per cubic yard, were pumped to the back of the Victoria Quay to reclaim the foreshore.

In June, 1902, the "Premier" had completed all the dredging which could be economically done by a suction dredge, and was accordingly laid up; but in 1903 she was despatched to Albany to take the place of the "Governor," upon the latter being hired for service in South Australia.

The sand-pump dredge "Governor," similar in design to the "Premier," but somewhat larger and more powerful, having two sets of pumps and twin propellers, started work in the Swinging Basin in November, 1899; the total amount removed and carried to sea to March, 1901, when she was transferred to Albany, was 1,534,847 cubic yards, at an average cost, allowing for depreciation and interest, of 5·20 pence per cubic yard; 338,180 cubic yards were pumped into her own hoppers and carried to sea, at an average cost of 3·92 pence per cubic yard, and 1,196,667 cubic yards into hopper barges, towed to sea and discharged at an average cost of 5·57 pence per cubic yard.

The suction-pump dredge "Canning," in August, 1898, was transferred to this branch, and until September, 1899, when she was transferred back to Perth, she was engaged in excavating sand, etc., from under the Victoria Quay, the wharf having been constructed in advance of the dredging. The excavated material was discharged into wooden hopper barges and towed to sea to be deposited. During this period she removed 60,725 cubic yards for an expenditure of £3,418 8s. 1d., equivalent to an average cost of 13·51 pence per cubic yard.

After the transfer of the "Canning" to Perth it was found necessary to construct a small suction-dredge, somewhat similar in design, to complete the work under the Quay. This dredge was named the "Perth," and she has lifted and discharged into hopper barges 3,108 cubic yards for an expenditure of £330 17s. 8d., an average cost of 25·55 pence per cubic yard.

The total rock excavated by the dredges "Fremantle" and "Parmelia," and the "Priestman" grab-dredge, amounts to 2,036,229 cubic yards, at an average cost, allowing for depreciation and interest, of 17·31 pence per cubic yard.

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The total sand excavated by the dredges "Fremantle," "Parmelia," "Premier," "Governor," "Canning," "Perth," and "Priestman" grab-dredge, amounts to 7,802,213 cubic yards, at an average cost, allowing for depreciation and interest, of 7·50 pence per cubic yard.

Summarising the result of the dredging operations detailed above, there is now an entrance channel 30ft. deep at low water and 450ft. wide, from the five fathoms contour, for a distance of 3,000ft.; at its inner end this channel is gradually widened out for a length of 1,550ft. to a point opposite the Western end of the Victoria Quay, where the width is increased to 575ft. From this point the widening is more rapid, until at a further distance of 1,800ft. the full width of 1,400ft. is attained. Hence for a further distance of 2,850ft. the full width of 1,400ft. and a depth of 30ft. at low water are maintained, forming the present Swinging Basin.

Beyond this again, a channel 300ft. long and 150ft. wide has been dredged along the face of the Victoria Quay to its extreme Eastern end. This gives an area of 176 acres inside the Harbour, with a depth of 30ft. at low water.

Quays and Wharves.

Victoria Quay.—This wharf has been constructed along the reclaimed foreshore on the South side of the Harbour for a total length of 5,055ft., and is 62ft. wide. It is in direct communication with the railway system of the State, and well lighted by a complete installation of electric lamps, with every convenience for the transhipment of goods from oversea vessels.

During the past year the Embankment slope under this wharf has been covered for a length of 2,750ft. with a protecting coat of cement, and this work is being further extended in connection with the contract for the erection of additional wharf sheds.

Goods Sheds.—To facilitate the unloading of vessels three goods sheds, 240ft. long by 100ft. wide, were erected in the year 1902 at the Eastern end of Victoria Quay. During the past year a contract has been let for the erection of two additional sheds, each 330ft. long by 75ft. wide, with the option of two further sheds of similar dimensions which have since been ordered. At the Western end accommodation has been provided by moving two large sheds from the Harbour Works' yard to the wharf, and adapting them to requirements. These provide goods sheds 120ft. and 100ft. long respectively by 30ft. wide. The railway communications have been adapted to the service of these new sheds by the Railway Department.

North Quay.—This wharf, which has been erected along the North side of the river, parallel to, and at a distance of 1,400ft. from

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the face of the Victoria Quay, was completed in 1902 to the extent so far authorised, and affords a present berthage of 2,000ft., with a depth of 30ft. at low water alongside. The extension of this quay is in present contemplation, and some improvements in the railway and vehicular communications have been effected.

Mail Boat Jetty.—This jetty, on the Northern side of the Basin, was completed in 1900, and was originally constructed to afford berthage accommodation for the Mail steamers, but has not been utilised for that purpose, the vessels always coming to the Victoria Quay or the stream buoys. On the Eastern side it has a length of 500ft. and on the Western side 400ft. It is now principally used as a coal wharf.

Total Wharfage Available.—The total wharfage, at date, available inside the Harbour is:—Victoria Quay, 5,055ft.; North Mole Wharf, 1,000ft.; South Mole Wharf, 300ft.; Mail Boat Jetty, 900ft.; and North Quay, 2,000ft.—making a total of 9,255ft., or not far short of two miles.

Miscellaneous.

Temporary Slip, Rous Head.—This slip was completed in December, 1899, since which date it has been of great service to both Government and private owners of vessels, vessels up to 850 tons burden having been taken up on it.

Tonnage.—The net registered tonnage of steamers and sailing vessels combined, which made use of the harbour in 1903, was 1,345,344 tons, representing 161 mail boats, 457 other steam vessels, and 138 sailing vessels.

Levelling Down Arthur's Head.—This work (so far as at present intended to be carried out) has been completed, and the levelled ground thus obtained forms one of the busiest parts of the railway station yard at Fremantle.

General Progress.

Instead of the low sandy shore, known to the old residents as Willis Point, there are now, at the river's mouth, substantial quays and jetties, with sailing vessels and steamships berthed alongside, receiving and discharging cargo for and from all parts of the world.

It was on 4th May, 1897, that the first practical demonstration of the satisfactory progress of the works was given, when the s.s. "Sultan," of the Western Australian Steam Navigation Co., 1,270 tons register (2,062 tons gross), from Singapore, entered the harbour and berthed at the Victoria Quay.

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The crowning proof of the success of the harbour is now amply demonstrated, all the English, German, and French mailboats making this their first and last port of call in Australia, entering and leaving with impunity in all weathers and at all hours. These vessels vary in size from 6,000 to 12,000 tons.

The works have been carried out under the general supervision of the Engineer-in-Chief of the State, assisted by a Resident Engineer.

Harbour Trust.

In accordance with an Act of Parliament passed in the Session of 1902, a Harbour Trust was constituted for the general administration of the Harbour, the Commissioners thereunder taking office in January, 1903, and the Trust has since managed all the affairs of the Harbour entirely to the satisfaction of the Government, the shipping and mercantile community, and the general public.

Full particulars of jetty and wharfage accommodation at Fremantle are given in the chapter dealing with this subject for the whole of the State.

BUNBURY HARBOUR WORKS.

When Harbour Works at Bunbury were first proposed, the late Engineer-in-Chief, Mr. C. Y. O'Connor, M. Inst., C.E., C.M.G., prepared alternative designs for them as follows: 1. For an inner harbour, similar in conception to that being constructed at Fremantle, with two ocean moles, and an entrance to Leschenault Estuary at the embouchure of the Preston River, estimated cost £430,000. 2. For a mole reaching out from Casuarina Point for a length of 3,000ft. to shelter, to some extent, the existing anchorage; estimated cost £100,000. The latter alternative was adopted.

The work was commenced on the 27th April, 1897, when the first load of stone was tipped into the sea at the root of the breakwater, the ceremony being performed by the then Premier, Sir John Forrest, K.C.M.G.

The scheme, so far, is comprised in the construction of a mole running out into the ocean from Casuarina Point in a North-North-Easterly direction, thus partly enclosing Koombana Bay, and, to some extent, protecting the shipping from the force of the West to North-West gales.

The Mole is of the "Pierres Perdues" type, and follows generally along a curve of about half-a-mile radius. Its foundation for the whole distance is bare rock, the mole reaching, in 21ft. of water, a length of 3,200ft.

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The top of the breakwater rises from 12ft. above low water at the shore end, to 16ft. at a distance of 1,500ft. seawards, and then continues level. Rise of tide 4ft. The width on top, as constructed, is 25ft. at the shore end, and thence increases to 56ft. at the ocean end. A parapet has been constructed on the West side of the breakwater from the ocean end to near the shore end. It is formed of rough rubble work with stone ranging up to 20 tons in weight, and decreases in height and width as it extends shorewards.

The inner slope will probably be 1½ horizontal to 1 vertical, and the outer slope 1½ to 1 from top of mole to near high water; thence downwards, the slope will be such as the action of the waves may produce, probably, on the average, about 3 to 1.

The stone is granite, having an average specific gravity of 2·73, which is equivalent to 13·13 cubic feet to the ton. In the form of a mass of rubble, as it stands in the mole, it is found to weigh 1·26 tons per cubic yard of mole. The stone is brought from a distance of 15½ miles, the quarry being 2½ miles North-East of the Collie station on the South-Western Railway. The tramway from the main line to the quarry is on an up grade of 1 in 25 for the whole 2½ miles.

The stones composing the breakwater vary from 1cwt. to 12 tons, the majority weighing from three to six tons.

On the 31st December, 1898, namely, at the end of 20 months from the commencement of the work, the length of breakwater constructed was 3,200ft., at which length it has since remained, representing a total weight of stone deposited of 298,281 tons, the parapet being carried back a distance of 220ft. from the end. The rate of progress per day averaged 6ft. 6in., the work being much interrupted by heavy gales during the winter months. The cost, to same date, £67,401, which is exclusive of any charge for the tramway, first cost of plant, or opening of the quarry, was equivalent to 4s. 7d. per ton. This includes 1s. 1d. per ton freight paid to the Railway Department for carriage of stone between Collie and Bunbury.

The work during the year ended 30th June, 1899, consisted in widening the Mole to the full width, as originally designed, so that its width varies from 25ft. at the shore end to 57ft. at the sea end. The Breakwater was first run out at a narrow width so as to attain shelter as quickly as possible, and it was breached and flattened down for a considerable distance by storms of great severity during the months of June and July, 1898; but it was soon restored again to its original height. A slight alteration of the centre line enabled all the stone disturbed by the sea to be utilised. As an additional protection, a parapet of loose rock has been constructed from the sea end back to 1,520ft. from the shore end.

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The total expenditure on this main portion of the Bunbury Harbour Works Scheme has been £116,705.

The main jetty is constructed of timber, and consists of a neck or viaduct 1,900ft. long, running from the shore in a North-Easterly direction to a head 1,588ft. long, running North and South. The head affords berthage for two steamers and three sailers on the East, and two steamers and three sailers on the West side, the depth of water at low tide ranging from 15 to 20 feet. A viaduct 2,500ft. long, partly in stone and partly in timber, connects the lines on the jetty head with the main railway system of the State. With the exception of Northerly gales, the jetty is protected from all weather.

Further extension of the works has been in abeyance for some few years, the question as to whether the Outer Harbour shall be further developed, or wheth er works for an Inner Harbour should be instituted having been the subject of not a little controversy. It is expected, however, that in the forthcoming year a decision will be come to, and that additional works will thereupon be undertaken.

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2.—JETTY AND WHARF ACCOMMODATION AT THE VARIOUS PORTS OF THE STATE ON 31ST DECEMBER, 1904.

(Information supplied by Public Works Department.)

Locality.	Character of Situation.	Nature of Jetty or Wharf.	Total Length from Shore Line.	Head of Jetty.		No. of Berths.		Depth of Water.			Accommodation.	Remarks.
								High Water.		Low Water Ordinary Spring Tides.		
				Length.	Width.	Vessels, 300ft.	Schooners or Lighters.	Ordinary spring tides.	Neap Tides.			
			ft.	ft.	ft.			ft. in.	ft. in.	ft. in.		
Wyndham ...	At head of Cambridge Gulf; not exposed to ocean seas	Timber jetty, with T head	230	89½	31	1	...	28 9	20 0	5 0	Goods sheds, cattle yards, race, and gangway; tramway, 2ft. gauge, 6 trucks. Water supply on jetty. Concrete cattle dip.	At low water vessels lie aground in mud; ordinary spring tides rise 23ft. 9in.
Derby	At head of King Sound; not exposed to ocean seas	Timber jetty, with T head	516	180	31	1	...	29 0	18 0	Dry	Goods shed and bonded store, wool shed, and loading platform, cattle yards and race and iron gangway; tramway, 3ft. 6in. gauge, 13 railway trucks and 1 passenger car. Water supply on jetty. Two mooring buoys.	Dry at low water; vessels lie aground on mud. Spring tides rise 36ft.
Broome	Protected by entrance point on S.W.; thence by land on N. and E., and coast line trending S.S.W. Further partially protected by sand banks 3ft. above low water immediately outside anchorage, and by other banks, dry at low water, at a distance of 7 or 8 miles S. and S.S.W. of jetty	Timber jetty, with straight head	2,500	340	30	2	...	22 6	12 0	Dry	Tramway, 2ft. gauge, to township. Customs warehouse in town, goods shed, 50ft. x 29ft., near foot of jetty; 18 1-ton trucks, 2 4-ton trucks, 2 8-ton trucks; 1 passenger car; 1-ton crane on jetty. Water supply on jetty	Dry at low water. Rise of spring tide, 30ft. Vessels lie aground on muddy sand.

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	perfectly protected from ocean seas	with T head									4 1-ton trucks, 2 2-ton trucks, 2 4-ton trucks; cattle yards, race, and gangway; 2 mooring dolphins. Bonded store, 50ft. x 30ft., and goods shed, 50ft. x 30ft., at foot of jetty	fined by beacons; fifth order light on tower in town. Tide signals in use to show depth of water on outer bar. Rise of spring tide, 23ft.
Balla Balla ...	In creek; sheltered from ocean seas	Timber jetty, with T head	157	97	30	...	2	16 0	10 0	2 0	Tramway, 2ft. gauge, 6 trucks; sheep race and gangway	Spring tides rise 14ft.
Cossack	On Butcher's Inlet or "Cossack Creek"	Quay wall constructed of concrete masonry	...	262	...	...	2	13 0	8 0	Dry	Goods shed; bonded store; crane; tramway, 2ft. gauge, to Roebourne (8 miles).	
Do.	Do.	Stock jetty ...	...	30½	16	...	1	18 6	13 6	6 0	Stockyard and cattle-race	Lighters can float along side at low water.
Do.	At Point Sampson, Port Walcott, Protected by coast line N.N.W. to S.E. Otherwise open to Indian Ocean and all easterly weather	Stock jetty, with T head	1,850	281	30	1	1	35 0	30 0	18 0	Sheep-yards at foot of jetty; races and gangway for shipping; small yard at sea end of jetty for quiet cattle, with gangway	Not connected to shore end by tramway. For stock only. Mooring buoy at north end of head.
Fortescue ...	In creek; not exposed to seas	Landing stage; stone embankment, timber extension	100	50	40	...	1	21 0	No record	7 0	Goods shed and sheep shipping facilities	Spring tides rise 14ft.
Ashburton ...	Open coast line, exposed to all northerly weather; coast line runs E. and W.	Timber jetty, with straight head	1,120	120	30	...	2	14 6	12 0	8 0	Sheep shipping facilities; 1 2-ton crane, 1 6-ton crane. Tramway, 2ft. gauge, to town (4¼ miles), 8 1-ton trucks, 2 2-ton trucks, 1 passenger car, goods shed and bonded store, 50ft. by 30ft.	Jetty used by lighters only. Buoy at anchorage. Telephone line from jetty to township.

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2.—JETTY AND WHARF ACCOMMODATION AT THE VARIOUS PORTS OF THE STATE ON 31ST DECEMBER, 1904.

(Information supplied by Public Works Department.)

Locality.	Character of Situation.	Nature of Jetty or Wharf.	Total Length from Shore Line.	Head of Jetty.		No. of Berths.		Depth of Water.			Accommodation.	Remarks.
								High Water.		Low Water Ordinary Spring Tides.		
				Length.	Width.	Vessels, 300ft.	Schooners or Lighters.	Ordinary spring tides.	Neap Tides.			
			ft.	ft.	ft.			ft. in.	ft. in.	ft. in.		
Wyndham ...	At head of Cambridge Gulf; not exposed to ocean seas	Timber jetty, with T head	230	89½	31	1	...	28 9	20 0	5 0	Goods sheds, cattle yards, race, and gangway; tramway, 2ft. gauge, 6 trucks. Water supply on jetty. Concrete cattle dip.	At low water vessels lie aground in mud; ordinary spring tides rise 23ft. 9in.
Derby	At head of King Sound; not exposed to ocean seas	Timber jetty, with T head	516	180	31	1	...	29 0	18 0	Dry	Goods shed and bonded store, wool shed, and loading platform, cattle yards and race and iron gangway; tramway, 3ft. 6in. gauge, 13 railway trucks and 1 passenger car. Water supply on jetty. Two mooring buoys.	Dry at low water; vessels lie aground on mud. Spring tides rise 36ft.
Broome	Protected by entrance point on S.W.; thence by land on N. and E., and coast line trending S.S.W. Further partially protected by sand banks 3ft. above low water immediately outside anchorage, and by other banks, dry at low water, at a distance of 7 or 8 miles S. and S.S.W. of jetty	Timber jetty, with straight head	2,500	340	30	2	...	22 6	12 0	Dry	Tramway, 2ft. gauge, to township. Customs warehouse in town, goods shed, 50ft. x 29ft., near foot of jetty; 18 1-ton trucks, 2 4-ton trucks, 2 8-ton trucks; 1 passenger car; 1-ton crane on jetty. Water supply on jetty	Dry at low water. Rise of spring tide, 30ft. Vessels lie aground on muddy sand.

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	perfectly protected from ocean seas	with T head						[illegible]	[illegible]	[illegible]	10 0	Tramway, 2ft gauge; 4 1-ton trucks, 2 2-ton trucks, 2 4-ton trucks; cattle yards, race, and gangway; 2 mooring dolphins. Bonded store, 50ft. x 30ft., and goods shed, 50ft. x 30ft., at foot of jetty	Entrance channel defined by beacons; fifth order light on tower in town. Tide signals in use to show depth of water on outer bar. Rise of spring tide, 23ft.
Balla Balla ...	In creek; sheltered from ocean seas	Timber jetty, with T head	157	97	30	...	2	16 0	10 0	2 0	Tramway, 2ft. gauge, 6 trucks; sheep race and gangway	Spring tides rise 14ft.
Cossack	On Butcher's Inlet or "Cossack Creek"	Quay wall constructed of concrete masonry	...	262	...	...	2	13 0	8 0	Dry	Goods shed; bonded store; crane; tramway, 2ft. gauge, to Roebourne (8 miles).	
Do.	Do.	Stock jetty ...	...	30½	16	...	1	18 6	13 6	6 0	Stockyard and cattle-race	Lighters can float along side at low water.
Do.	At Point Sampson, Port Walcott, Protected by coast line N.N.W. to S.E. Otherwise open to Indian Ocean and all easterly weather	Stock jetty, with T head	1,850	281	30	1	1	35 0	30 0	18 0	Sheep-yards at foot of jetty; races and gangway for shipping; small yard at sea end of jetty for quiet cattle, with gangway	Not connected to shore end by tramway. For stock only. Mooring buoy at north end of head.
Fortescue ...	In creek; not exposed to seas	Landing stage; stone embankment, timber extension	100	50	40	...	1	21 0	No record	7 0	Goods shed and sheep shipping facilities	Spring tides rise 14ft.
Ashburton ...	Open coast line, exposed to all northerly weather; coast line runs E. and W.	Timber jetty, with straight head	1,120	120	30	...	2	14 6	12 0	8 0	Sheep shipping facilities; 1 2-ton crane, 1 6-ton crane. Tramway, 2ft. gauge, to town (4¼ miles), 8 1-ton trucks, 2 2-ton trucks, 1 passenger car, goods shed and bonded store, 50ft. by 30ft.	Jetty used by lighters only. Buoy at anchorage. Telephone line from jetty to township.

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Jetty and Wharf Accommodation at the various Ports of the State—continued.

Locality.	Character of Situation.	Nature of Jetty or Wharf.	Total Length from Shore Line.	Head of Jetty. Length.	Head of Jetty. Width.	No. of Berths. Vessels, 300ft.	No. of Berths. Schooners or Lighters.	Depth of Water. High Water. Ordinary Spring tides.	Depth of Water. High Water. Neap Tides.	Depth of Water. Low Water. Ordinary Spring Tides.	Accommodation.	Remarks.
			ft.	ft.	ft.				*High Water ft. in.	*Low Water ft. in.		
Maud's Landing	Well protected by reefs on W. and S., but exposed to N.W. winds	Timber jetty, with straight head	1,500	100	20	...	2	...	15 6	9 6	Wool shed. Tramway, 2ft. gauge, and 4 trucks. Well.	
Carnarvon (Babbage Island)	Partially protected by islands, 25 miles distant, running parallel with coast on the W., but open to N.W.	Timber jetty. Straight head, with L extension	4,902	562	30	4	...	...	22 0	16 6	Tramway, 2ft. gauge, to township (2¼ miles): 14 1-ton trucks, 2 4-ton, 2 8-ton trucks; passenger car; cattle yards, race, and gangway; goods shed and bonded store at terminus.	
Geraldton ...	Protected from S. and W., but open to N.W.	Timber jetty, with straight head	2,447	1,768	47½	†4 6	according to size	... ...	18 to 20 17 to 15	16 to 18 15 to 13	Railway, 3ft. 6in. gauge.	

* Southward of North-West Cape no true tides exist. Depths at highest and lowest water only are given.

† Note.—Details of berthage: 2 vessels, up to 300 feet, 18′ to 17′ at low water.
2 " " " 17′ to 16′ " "
2 " " " 16′ " "
2 " " " 16′ to 15′ " "
2 " " " 15′ to 13′ " "
1 " " 200 feet, 13′ to 12′ on E. side
1 " " 400 feet, 13′ to 12′ on W. side.

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Jetty and Wharf Accommodation at the various Ports of the State—continued.

Locality.	Character of Situation.	Nature of Jetty or Wharf.	Total Length from Shore Line.	Head of Jetty. Length.	Head of Jetty. Width.	No. of Berths. Vessels up to 300ft.	No. of Berths. Schooners or Lighters.	Depth of Water. Exceptionally High Water. Spring Tides.	Depth of Water. Ordinary High Water.	Depth of Water. Low Water.	Accommodation.	Remarks.
			ft.	ft.	ft.			ft. in.	ft. in.	ft. in.		
Dongara	Protected on W. by reefs dry at low water, but open to N.W.	Timber jetty, with straight head	1,250	200	25½	2 2	... ...	... ...	16 0 14 0	14 0 12 0	Tramway, 3ft. 6in. gauge, 4 1-ton trucks; goods shed; 2-ton crane on jetty	
Rottnest	Sheltered by Rottnest Island	Stone jetty ...	66	...	15	...	1	...	5 0	2 0	1-ton crane on jetty.	
Fremantle - Ocean Jetty ...	Protected by islands and shoals in all directions, except N.W.	Timber jetty, with straight head	3,294	...	48	2 2 2 2	... ... 8 4	23 9 21 9 19 9 17 9 15 9 10 9	22 0 20 0 18 0 16 0 14 0 9 0	19 0 17 0 15 0 13 0 11 0 6 0	Railway—3 lines; ample goods shed accommodation on shore, directly connected by railway and road.	
South Jetty ...	At shore end of Ocean Jetty, and well protected by same	Timber jetty, with enlarged head	484	54	92	...	3	10 9	9 0	6 0	4 derrick cranes; ample goods shed accommodation on shore in direct communication by road.	
				Wharf. ft.	ft.							
North Mole Wharf	Protected on the S. and S.W. by islands and shoals, and on the N. and N.W. by mole	Timber wharf ...	...	1,000	51	1 1	... ...	27 3 30 9	25 6 29 0	22 6 26 0	2 lines of rails in connection with goods shed on shore.	
South Mole Wharf	Protected from W. by islands and shoals; in all other directions by moles	Timber wharf ...	...	300	46	1	...	21 9	20 0	17 0	1 line of railway connecting with goods sheds on shore	
Mail Boat Jetty	Situated on North bank of Swan River in inner basin of Fremantle Harbour	Timber jetty, with straight head	...	450	100	2	...	34 9	33 0	30 0	Connected by railway to main line to Perth and Fremantle.	

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Jetty and Wharf Accommodation at the various Ports of the State—continued.

Locality.	Character of Situation.	Nature of Jetty or Wharf.	Total Length from Shore Line.	Head of Jetty. Length.	Head of Jetty. Width.	No. of Berths. Vessels up to 300ft.	No. of Berths. Schooners or Lighters.	Depth of Water. Exceptionally High Water. Spring Tides.	Depth of Water. Ordinary High Water.	Depth of Water. Low Water.	Accommodation.	Remarks.
			ft.	ft.	ft.			ft. in.	ft. in.	ft. in.		
Fremantle—*contd.* Victoria Quay...	Situated along South bank of Swan River, inner basin of Fremantle Harbour	Timber wharf ...	...	4,260 795	61 46	14 ...	... ...	34 9 ...	33 0 ...	30 0 ...	Connected by railway and road to goods shed and main line to Perth; 7 goods sheds, 240ft. x 100ft., have been erected	This quay is lighted by electricity.
North Quay ...	Situated on North bank of Swan River, inner basin of Fremantle Harbour	Timber wharf ...	...	2,000	75	6	...	34 9	33 0	30 0	Connected by railway to main line to Perth.	
				Head of ft.	Jetty ft.							
Owen's Anchorage	Well protected by islands and banks in all directions	Timber jetty, straight head	771	255	21	2	...	...	21 0	18 0	Tramway, 2ft. gauge; cattle yards.	
Woodman's Point Quarantine Station Jetty	Well protected by islands and banks in all directions	Timber jetty, with L head	322	40	22	...	1	...	9 0	6 0	Tramway, 2ft. gauge, to Quarantine Station.	
Explosives Jetty, Woodman's Point	Well protected by islands and banks in all directions	Timber jetty, with straight head	435	136	32	...	2	...	25 0	22 0	Explosives shed on jetty head, 100ft. x 25ft. 6in.; railway, 3ft. 6in. gauge to Magazines and to Fremantle railway.	
Bunbury	Protected by mole, 3,200ft. long	Timber jetty, with head	3,488	1,588	47½	8* ...	... 2	... ...	17 to 23 13 0	15 to 21 9 0	Goods shed, cranes, mooring buoys, water, etc.; railway connected with State railway system	
Busselton ...	Partially protected from South-West by Cape Naturaliste	Timber jetty, with straight head	4,032	260	31½	2	...	...	21 6	18 3	Railway, connected with State railway system	
Quindalup ...	Open to North; water very shallow for some distance outside	Timber jetty, with straight head	633	108	20	...	2	..	7 6	4 3	3-ton crane; tramway, 3ft. 6in. gauge	

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											ing stage for launches 90ft. x 26ft., giving berths for 3 launches with 8ft. L.W.M.; also shelter shed thereon, 52ft. x 18ft.	railway system by a timber viaduct 1,543ft. long, enabling the jetty traffic to be operated by locomotive.
(b.) Little Grove Jetty	Land-locked harbour	Timber jetty, with T head	735	34	15	...	...	...	12 6	8 6	... ...	Launch jetty.
(c.) Middleton Beach Jetty	Sheltered from West, but exposed to East	Timber jetty, with T head	101	20	11	...	...	...	10 9	6 9	... ...	Launch jetty.
(d.) Quarantine	Well sheltered in land-locked harbour	Timber jetty ...	450	45	13	...	2	...	11 9	7 3	Waiting-room; tramway, 2ft. gauge	Every accommodation for quarantine passengers.
(e.) Railway	Well sheltered in land-locked harbour	Timber and iron, straight head	1,650	676	42	3‡	...	...	32 6	30 0	Travelling cranes; 4 mooring buoys; railway, 3ft. 6in. gauge,	
(f.) Harbour Master's and Defence	Just inside Inner Harbour on North Side	Timber jetty, L head	337½	15	20	...	...	...	7 6	3 0	... ...	Launch jetty.
Hopetoun	Protected by shoals and reefs	Timber jetty, straight head	643	44	20	...	2	...	11 0	8 0	10-ton crane on jetty; tramway, 2ft. gauge, and 8 trucks; goods shed and loading platform, and 5-ton crane; mooring buoys.	
Esperance ...	Protected by Dempster Head from South-West, and by Islands from other directions except South	Timber jetty, straight head	2,810	330	30	{ 2 { ...	... 2	... ...	22 0 14 0	17 0 9 0	Tramway, 3ft. 6in. gauge, and 6 trucks; large goods shed and bonded stores; mooring buoys.	
Israelite Bay ...	Partially protected by shoals and weed banks	Timber boat jetty	248	11½	10½	...	...	...	9 0	4 0	Boat landing and steps.	
Eucla	Partially protected by banks	Timber jetty, straight head	496	46	24	...	2	...	9 0	5 0	Tramway, 3ft. 6in. gauge; derrick on head; sheep fencing and gangway.	

* NOTE.—DETAILS OF BERTHAGE.

East side of jetty head.		*West side of jetty head.*	
No. 1.—280 feet	21 feet	No. 1.—440 feet	20½ feet
„ 2.—250 „	20 „	„ 2.—300 „	20 to 19 feet
„ 3.—300 „	20 to 18 feet	„ 3.—300 „	19 feet
„ 4.—300 „	18 feet	„ 4.—300 „	19 to 17 feet
„ 5.—300 „	19 to 15 feet		

† NOTE.—DETAILS OF BERTHAGE.

2 berths up to 450 feet	23 feet low water
1 berth „ 300 „	18 „ „ „
1 „ „ 250 „	17 „ „ „
1 schooner berth	14 „ „ „
1 „ „	10 „ „ „

‡ NOTE.—DETAILS OF BERTHAGE.

1 berth of 550 feet	30 feet low water
1 „ 400 „	30 „ „ „
1 „ 200 „	12 „ „ „

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3.—DESCRIPTION OF LIGHTS ON WESTERN AUSTRALIAN COAST, 31st DECEMBER, 1904.

(Information supplied by the Chief Harbour Master.)

Name of Light.	Position.	Latitude S.	Longitude E.	Colour of Light.	Character of Light.	Period of Revolution or of System.	Miles seen in Clear Weather.	General Description of Building or Vessel.	Height in Feet above High Water.	Height in Feet of Building.	Year Established.	Character and Order of Apparatus, and Power in units of 1,000 Candle Power.	Remarks.
		° ′	° ′										
Wyndham Jetty Light	South end of Cambridge Gulf	15 27	128 06	Red ...	Fixed ...	...	4	Wooden gallows on jetty end	15	12	1895	Ordinary Lantern	
Derby Jetty Light	Head of King Sound	17 17	123 35	White ...	Fixed ..	...	4	Wooden platform on jetty end	26	20	1901	Dioptric, 6th Order	One red sector visible from North end of Mary Ann Island.
Broome Jetty Light	Roebuck Bay	17 58	122 14	Red ...	Fixed ...	...	5	Wooden platform ...	...	...	1899	Ordinary Lantern	At extreme end of Jetty.
Broome Leading Lights	Roebuck Bay ...	17 57	122 14	White ...	Fixed ...	...	15	Steel skeleton frames	...	...	1900	Dioptric, both 5th Order	Lights in line N.N.E ¼E. lead between Channel Rock and West end of Middle Ground.
Port Hedland Light	Centre of town of Port Hedland	20 18	118 35	White ...	Fixed ...	...	12	Tide Signal Staff ..	48	40	1904	Dioptric, 5th Order	Light visible East of bearing S. 18° East. magnetic from Seaward.
Jarman Island Light	Centre of Jarman Island, Port Walcott	20 39	117 13	White .	Fixed ...	...	15	Iron tower, painted lower half red, upper half white	97	30	1888	Dioptric, 3rd Order 2¼.	
Onslow Jetty Light	North side of entrance to Curlew River	21 40½	155 00	Red ...	Fixed ...	...	4	Wooden platform on jetty end	25	15	1901	Ordinary Lantern	Jetty for Lighters.
Babbage Island Light	West side of Babbage Island, entrance Gascoyne River	24 52	113 38	White ..	Fixed ..	...	15	Wooden frame tower square in form, painted white	102	60	1896	Dioptric, 4th Order	Two red sectors one visible from Northward between S. 15° E. and S. 41° E., which leads West off Blowfish Bank; and one visible from Southward, between N. 15° W and N. 31° E., which leads West of Elbow Shoal.

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[illegible]						[illegible]	...	4	Wooden gallows ..	30	12	1898	tern Ordinary Lantern	Pearling Station.
No. 1 Bluff Leading Light, upper	North part of Champion Bay, about 1 mile Southward of Champion River	28	45	114	37	White .	Fixed ...	...	8	Square white stone tower	65	25	1882	Dioptric Holophote 1	Leading Lights 300yds. apart, visible N. 76° E. and S. 76° W. Lights in line E. by N. ½N. lead through the channel N. of Moore Point Reefs.
No. 2 Bluff Leading Light, lower	North part of Champion Bay, near high-water mark	28	45	114	37	White ...	Fixed ...	...	...	Octagonal white stone tower	41	37	1882	Dioptric, 4th Order ½	
No. 1 Geraldton North Jetty Light	Near centre of town of Geraldton	28	46	114	36	Red ...	Fixed ...	...	5	Wooden gallows .	30	10	1895	Dioptric, Port Light, 5th Order	Leading Lights in line lead clear of Inner Knoll Buoy and up to North Jetty.
No. 2 Geraldton North Jetty, Shore end	Shore end of Jetty	...		...		Red ...	Fixed ...	...	5	Wooden mast ...	40	20	1901	Port Light, about 7th Order	
No. 1 Point Moore Upper Light	Extreme West end of Point Moore, South of Champion Bay	28	47	114	35	White ...	Revolving, showing single flash every 40sec.	...	18	Round iron tower, painted red and white horizontal bands	110	114 Base to Vane	1878	Revolving Dioptric Light, 2nd Order 20	Visible from seaward between the bearings of N. 25° W. and S. 31° W.
No. 2 Point Moore Lower Light	Same Tower as Upper Light	28	47	114	35	Red in 2 sectors	Fixed ..	...	12	Round iron tower painted red and white, horizontal bands	90	..	1878	Dioptric, 4th Order, vertical prisms ½	Two red sectors are shown from lower light in same building—one visible from Southward, between N. 25° W. and N. 2° W., which leads 1½ miles West of African Reef. Another from Northward, between S. 31° W. and S. 59° W., which leads one cable E. of Inner Knoll Rock.
Dongara Jetty Light	End of Dongara Jetty, Port Irwin	29	17	114	56	Red ...	Fixed ...	...	4	Wooden platform on jetty end	18	12	1887	Ordinary Lanterns	
Port Dongara Light	150 yards from Beach	29	17	114	56	White ...	Fixed ...	...	5	Wooden gallows ...	61	12	1887	Ordinary Lantern ½	

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Description of Lights on Western Australian Coast, 31st December, 1904—continued.

Name of Light.	Position.	Latitude S.	Longitude E.	Colour of Light.	Character of Light.	Period of Revolution or of System.	Miles seen in Clear Weather.	General Description of Building or Vessel.	Height in Feet above High water.	Height in Feet of Building.	Year Established.	Character and Order of Apparatus, and Power in units of 1,000 Candle Power.	Remarks.
		° ′	° ′										
Rottnest Light	On a hill 154 feet high, near middle of Island	32 00	115 31	White ...	Revolving, showing single flash every 20sec. Flash 3sec. Eclipse 17 sec.	1 complete revolution in 2min. 40sec.	23	Round stone tower of a natural grey colour	264	127 Base to Vane	1896	Revolving Dioptric, 1st Order 45	Visible all round the horizon.
Bathurst Point, Rottnest Island	On Bathurst Point, N.E. Extremity Rottnest Island	31 59	115 33	White ...	Fixed ...	...	15	Round stone tower of a natural grey colour	98	...	1900	Dioptric, 2nd Order	Visible from seaward over an arc of 200 degrees, *i.e.*, between the bearings of E. ¼ S. through North to N.W. by W. ½ W.
Fremantle Jetty Light	End of Fremantle Jetty	32 03	115 45	Red ...	Fixed ...	...	5	Iron skeleton frame	30	20	1893	Dioptric, 6th Order	Jetty lighted up with 20 ordinary gas lamps.
Beacon Lights (five)	Entrance to River Harbour	32 03	115 45	Three Red Lights North side of Channel	...	...	3	Wooden pile beacons	14	10	1898	Dioptric, 5th Order	
				Two White Lights South side of Channel	...	..	4						
South Mole Light	End of South Mole	32 03	115 45	Green ..	Fixed Electric	...	7	Circular iron tower (grey colour)	49	30	1903	Dioptric, 4th Order	
North Mole Light	End of North Mole	...	...	Red .	Fixed ...	...	5	Wooden skeleton frame, tower painted	36	24	1897	Dioptric, 6th Order	To be improved.
Woodman's Point Leading Light	Woodman's Point	32 08	115 47	White, Red, and Green	Fixed Occulting	Light 27sec. Eclipse 3sec. Total 30sec.	17	Round stone tower of a natural grey colour	123	42	1902	Dioptric, 1st Order	Red from South 44 East to South 36 East. Bright from South 36 East to South 28 East. Green from South 28 East to South 16 East. Bright sector covers fairway to Gage Roads.

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Cape Leeuwin Lighthouse.

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	Koombanah Bay								painted red, lantern white				Order	
Bunbury Jetty Lights (two)	End of Jetty, Koombanah Bay	33 19	115 39	Red	Fixed		4	Two wooden gallows, 200ft. apart	25	15	1890	Ordinary Lantern	Two red lights in line lead clear of end of mole.
Bunbury Mole Light	Seaward extremity of Bunbury Mole	33 18	115 39	Green	Fixed Electric	...	7	Square wooden tower, painted white	44	24	1902	Dioptric, 5th Order	
Vasse Jetty Light	End of Busselton Jetty, Vasse	33 38	115 21	Red	Fixed ...	...	4	Wooden gallows ...	25	15	1870	Ordinary Lantern	
Vasse Light ..	Geographe Bay, 50 yards from inner end of Jetty	33 38	115 21	White	Fixed ..		11	Square wooden tower on piles painted white	63	56	1870	Dioptric, 5th Order	
Cape Naturaliste Light	About one mile South, 67° East from the extremity of Cape Naturaliste, at Western entrance of Geographe Bay	33 22	115 02	White	Dioptric Double Flashing	Flash—·15 secs. Eclipse—2·50 secs. Flash—·15 secs. Eclipse—7·20 secs.	29	Round stone tower of a natural grey colour	404	33	1904	Double White Dioptric, showing two flashes in quick succession every 10 sec.	Visible between the bearings of North 20° East and North 63° West. (Magnetic from seaward.)
Cape Leeuwin Light	Cape Leeuwin Point	34 22	115 09	White ...	*Feu éclair* or Lightning Light, revolving, showing a single flash every 5 secs. Duration of flash, one-fifth of a sec.; Eclipse four and four-fifths seconds	...	...	Round stone tower of a natural grey colour	185	115	1896	1st Order Lens Light, giving a single flash every 5 secs.	Revolved on Mercury, one complete revolution of the apparatus in 10 seconds

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Description of Lights on Western Australian Coast, 31st December, 1904—continued.

Name of Light.	Position.	Latitude S.	Longitude E.	Colour of Light.	Character of Light.	Period of Revolution or of System.	Miles seen in Clear Weather.	General Description of Building or Vessel.	Height in Feet above High water.	Height in Feet of Building.	Year Established.	Character and Order of Apparatus, and Power in units of 1,000 Candle Power.	Remarks.
		° ′	° ′										
Breaksea Island Light	1,200 yards from East extreme of Breaksea Island	35 04	118 04	White ...	Fixed ...	...	25	Round granite tower of a dark grey colour	390	34	1901	Dioptric, 1st Order	Visible from seaward between N.E. ¼ N. and W. by S. ½ S., and is also visible over low neck inside Bald Head on a N.E. bearing. From within the Sound it is visible all round except where obscured by Michaelmas Island.
Channel Beacon Lights (four)	Entrance to Princess Royal Harbour	35 02	117 55	Two Red Lights North side of Channel and Two White Lights South side of Channel	Fixed ...	...	3	Woodpile beacons ..	14	10	1892	Dioptric, Port Lights, 6th Order	Guiding lights to Inner Harbour.
					...	...	4						
Point King Light	On extremity of Point King, North side of Princess Royal Harbour	35 02	117 55.	White ...	Fixed ...	...	12	Wooden tower, square	47	17	1858	Dioptric, 5th Order ½	
Albany Deep Water Jetty Light	...	...	...	Red ...	Fixed ...	...	3	Wooden mast ...	...	...	...	Ordinary Lantern.	
Albany Town Jetty Leading Lights (two)	...	...	...	Red ..	Fixed ...	...	3	Wooden mast ..	...	...	...	Ordinary Lanterns	Lights in line lead up to Town Jetty.
Hopetoun Jetty	End of Jetty, Mary Ann Harbour	...	...	Red ..	Fixed ..	...	4	Wooden platform ..	28	15	1902	Ordinary Lantern	On Hopetoun Jetty, Mary Ann Harbour.
Esperance Jetty Light	End of Esperance Bay Jetty	..	...	Red ...	Fixed ...	...	4	Wooden platform ...	28	15	1901	Ordinary Lantern	Town Jetty.

4.—BOUNDARIES OF PORTS OF WESTERN AUSTRALIA.

ALBANY, *proclaimed by Federal Government* 17-4-1903.—The Port of Albany includes all the waters of King George Sound and Princess Royal Harbour, lying Westward of lines starting from the Eastern extremity; North-Easterly to the lighthouse on Breaksea Island, and thence North-Westerly to Herald Point.

BROOME, 5-8-89.—All that piece of water embraced within an East and West line drawn through Station Hill, a North and South line drawn through Fall Point, an East and West line drawn three miles South of Entrance Point, a North and South line three miles West of Entrance Point, and including the whole extent of Dampier Creek.

BUNBURY, 21-4-55.—The Port of Bunbury extends from Point Casuarina to a part of the sea-coast one league North of the mouth of the Leschenault Inlet.

CARNARVON, 7-8-86.—All that piece of water embracing that portion of Shark Bay included within a radius of seven miles from the proposed Beacon site near the centre of Babbage Island.

CHAMPION BAY (GERALDTON), 28-12-76.—Extends from Point Moore on the South to such point on the sea beach on the North as may be cut by a line drawn from Point Moore to White Peak.

DERBY, 3-12-85.—All that piece of water embracing that portion of King Sound lying Southward and Eastward of a line joining Saddle Hill and Valentine Island (the former lying N.E. ¾ East and the latter S.W. ¾ W.)

DONGARA, 7-8-90.—All that piece of water embraced within a radius of three-quarters of a mile from the present Dongara lighthouse.

ESPERANCE, 1-8-94.—All that piece of water within a radius of 10 miles from Western Entrance Point of Bandy Creek.

EUCLA, 14-8-95.—All that piece of water within a radius of miles of the Red Beacon at the Western entrance of Eucla Harbour.

FLINDERS BAY OR PORT AUGUSTA, 21-4-55.—Includes all space lying to the West of a line from the Southernmost dry of the Alouarn Isles to a spot one league Eastward from the mouth of Hardey's Inlet.

FREMANTLE, *proclaimed in Port Regulations*, 21-12-98. (*Limits of Port of Fremantle.*)—The Port of Fremantle includes waters on the coast within 15 miles of Arthur Head and within Swan River from the mouth thereof as far as the Causeway Bridge, Eastward of Perth Water.

HAMELIN, *proclaimed by Federal Government*, 21-1-1905.—The Port of Hamelin includes all that piece of water embraced within a radius of two miles from White Cliff Point in the said State.

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ONSLOW, 17-8-93.—All that piece of water, whether sea or Ashburton River, included within a radius of seven miles from Entrance Point at the mouth of the Ashburton River.

PORT HEDLAND, 21-12-98.—All that piece of water within a radius of five miles of Hunt Point at the entrance of Port Hedland.

PORT WALCOTT (COSSACK), 13-1-66.—Bounded on the South and on the West by the sea-coast, Westward from the mouth of the Sherlock River to the North end of Dolphin Island, including all the intermediate bays, creeks, coves, inlets, and navigable waters; on the North by lines extending Easterly from North end of Dolphin Island to South end of Legendre Island, and thence to North end of Delambre Island; and thence South-Easterly to North end of the East boundary herein next described; and on the East by a straight line extending five statute miles true North from the sea mouth of Sherlock River aforesaid.

VASSE, 14-9-78.—Bounded by lines starting from the Quindalup Jetty, and extending due North three miles; thence to a point three miles due North from Lockville Jetty; thence to a point on the shore 20 chains North-Eastward from the entrance to Vasse Inlet.

WYNDHAM, 7-8-86.—All that piece of water embracing that portion of Cambridge Gulf to the Southward of a line from Islet Point to Hardman Port.

5.—WATER SUPPLY.

WATER SUPPLY FOR THE GOLDFIELDS.

(Particulars supplied by the Mines Department.)

It is not only desirable, but absolutely necessary, in a dry zone such as is the interior of Western Australia, to provide a water supply adequate to the demands of a rapidly increasing population. Communication, transport, even life itself, depend so much on water that the greatest desideratum, in every district, is consequently a good water supply.

On the goldfields it is not only for drinking or sanitary purposes that water is required, but also for the production of gold. The number of dividend-paying mines is at present small. The average of gold obtainable per ton is as good as, if not better than, that in other Australasian States, but there is a lack of suitable water to produce satisfactory crushings. Water is found in many places, but most of it contains such an *excessive* quantity of salt and other impurities that it is unsuitable for battery purposes. That the

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importance of overcoming this difficulty has been promptly and thoroughly recognised, is shown by the Government of the State having undertaken the great task of pumping water from the coast to Coolgardie. The scheme was designed by the then Engineer-in-Chief (the late Mr. C. Y. O'Connor, C.M.G.) and approved of by several of the leading engineers in the English-speaking world. Particulars of its working are given in a separate chapter, entitled "Goldfields Water Supply."

During the year 1896-7, prior to commencement of the works referred to above, works of a varied character were carried out by the Government, with a view to temporarily overcoming the "water difficulty" on the goldfields. These works comprised:—General water supply; shallow and artesian boring *; conservation and protection of water in reservoirs, tanks, soaks, lakes, lagoons, and claypans; construction of wells; erection of condensers; survey and construction of roads; making of stock routes; reporting on applications for grant of private water-rights under "The Goldfields Act, 1895," and reporting on applications for concessions for private water supply schemes. The work done on stock routes is referred to in a chapter specially dealing with that subject.

Report on other Goldfields Water Supply Works for the three years ended 31st December, 1904 :—

The operations of the "Mines Water Supply" Branch were carried on in the—

(*a.*) Coolgardie Goldfields Water Supply District;

(*b.*) Murchison Goldfields Water Supply District;

(*c.*) Pilbara Goldfields Water Supply District.

The expenditure incurred through the Mines Water Supply Branch during the three years ended 31st December, 1904, amounted to about £107,000, that for the year 1904 being £42,891, and the gross revenue therefrom was £20,631, the year 1904 being responsible for £6,814 of this amount.

As the total maintenance expenditure was £32,861 (for 1904 alone £12,796), it will be seen that the disproportion between maintenance and revenue is in favour of maintenance expenditure; but it should not be overlooked that the large indirect revenue from the works of this branch was by far the more important factor.

It has been found possible to lease many of the watering stations advantageously, and the system is found to work well. The total number of leases executed for the three years is 69 (for 1904 the number was 20).

Shallow hand-boring operations to the extent of 34,984ft. were carried out during the period under review, the figure for 1904 alone being 14,500ft.

* The subject of artesian boring is dealt with under "Mineral Production."

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A number of water reserves had to be surveyed by qualified surveyors attached to the branch, for gazetting purposes; some of these reserves contained considerable areas, and caused a large amount of work in the field, as well as in the office.

Altogether, about 90 new wells were constructed, the number during 1904 alone being 40, and a large number were repaired all over the goldfields.

The number of tanks completed is 21, with a capacity of 95,275,320 gallons; the total estimated cost being £233,605. The tanks are located at the following points:—Parker's Range (4,963,000 gallons), Londonderry (3,098,200 gallons), Bulong (3,027,200 gallons), 42-Mile (3,121,700 gallons), Kanowna (3,691,800 gallons), Black Flag (3,244,400 gallons), Broad Arrow (10,060,800 gallons), Siberia (1,575,500 gallons). Speakman's (1,008,500 gallons), Mulline (1,502,700 gallons), Bardoc (2,054,400 gallons), Goongarrie (1,048,300 gallons), Kalgoorlie (1,634,000 gallons), Menzies (3,049,400 gallons), Niagara (38,750000, gallons), Widgemooltha (3,026,000 gallons), 50-Mile Rock, Wingarnie (3,025,000 gallons), Norseman (3,000,000 gallons), Davyhurst (4,003,420 gallons), Mulgabbie (200,000 gallons), Reedy's (200,000 gallons).

Goldfields Water Supply.

(Formerly designated "Coolgardie Water Scheme." Particulars supplied by the Secretary, Goldfields Water Supply Administration.)

The magnitude of the undertaking which was originally styled the "Coolgardie Water Scheme," but which is now officially designated "Goldfields Water Supply," may to a certain extent be gauged from the cost of construction, amounting to over £2,600,000. Owing to its unique features, and the boldness of its conception (especially in view of the smallness of the population of the State), it has long since become an enterprise of world-wide renown.

The prospects of the Eastern Goldfields were sufficiently encouraging in the year 1894 to induce the Government of the day to extend the railway from Southern Cross to Coolgardie. The advent of a large population, and the development of mining, soon made the question of a water supply one of vital importance; and in September, 1896, the then Premier, Sir John Forrest, obtained the approval of the legislature to an expenditure of £2,500,000 for the provision of a supply of 5,000,000 gallons a day. The works, which are described hereunder, were energetically undertaken, and the whole scheme was brought to completion early in 1903.

The main reservoir is a wall of solid concrete, carried straight across the Helena River bed at a point where the width between the banks is 760 feet, and the surplus water flows directly over the weir crest and down the face of the wall 100 feet to the river below. It is the highest overflow weir in the world, and has a capacity of 4,600,000,000 gallons, and a daily output capacity throughout the year of 5,000,000 gallons. The scheme also stands unique in

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Goldfields Water Supply. Mundaring Weir.

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regard to the distance over which the water is pumped, viz., 351 miles.

There are 12 smaller reservoirs and receiving tanks, with a total storage capacity of 31,500,000 gallons. The Goldfields towns and districts are supplied from a main service reservoir at Bulla Bulling, about 1,200 feet higher than the Mundaring Reservoir. The water is raised by pumping installations at eight stations along the principal main, which is 30 inches in diameter.

In February, 1903, the control of the "Coolgardie Water Scheme" was transferred from the Public Works Department to a separate organisation, under the direct control of the Minister for Works, created in accordance with the provisions of "The Goldfields Water Supply Act, 1902."

The several Ministers who have had control of operations since the inception of this organisation are as follows:—

Hon. C. H. Rason: from 7th February, 1903, to 28th April, 1904.
Hon. J. L. Nanson: from 28th April, 1904, to 10th August, 1905.
Hon. W. D. Johnson: from 10th August, 1905, to 7th June, 1905.
Hon. J. P. Lynch: from 7th June, 1905, to 25th August, 1905.
Hon. F. Wilson: from 25th August, 1905 (present Administrator).

The water area within which the trading operations of the scheme are confined extends continuously from Guildford in the West to Kanowna in the East. The towns of Guildford and Midland Junction are now being reticulated, and supplies should be available early in 1906. The following towns are already supplied:—Mundaring, Sawyers' Valley, Lion Mill, Chidlow's Well, Northam, Southern Cross, Coolgardie, Bonnievale, Burbanks, Kalgoorlie, Boulder, and Kanowna.

On the 30th June, 1905, 7,960 consumers were connected with the water supply; and for the year ending on that date the consumption averaged 1⅞ million gallons per day.

Water is supplied to consumers wherever required along the main conduit, as well as at the Goldfields centres, and in the towns *en route*, at prices ranging from 2s. 6d. in the Western portion of the area to 8s. 4d. at Kanowna. The average price realised is 5s. 6d.

The financial result of the transactions for the twelve months ending 30th June, 1905, is as follows:—

Income	£141,067
Working expenses	42,835
Excess of income over working expenses ...	98,231
Interest and sinking fund on supplementary capital raised by the administration	8,632
Excess of income after paying interest and sinking fund on supplementary capital raised by the administration	89,599
Interest on main capital	89,300
Excess of income after paying interest on main capital	299
Sinking fund on main capital	81,100
Deficiency of income after providing for all charges	80,801

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The total cost of the main scheme, including charges of raising loans, etc., amounts to about £2,900,000, and on Supplementary Construction Works the administration has raised and expended £178,500, making a total capital expenditure of £3,078,500.

Although the Sinking Fund on main capital has, at present, to be paid out of State revenue, it cannot be said that the amount of same represents a direct loss to the State. The saving to the Railway Department represents a very substantial sum; and the indirect benefit to the State, as well as the direct advantages to residents and mine owners on the goldfields, may, to some extent, be gauged from the fact that it has been calculated that, prior to the advent of this water supply, the annual cost of water to the mines was over £300,000 greater than at present.

The Metropolitan Waterworks.

(Particulars supplied by the Secretary, Metropolitan Waterworks.)

Active work in connection with the Perth Water Supply Co. started in May, 1889, the reservoir being completed and water delivered into the town in October, 1890.

The Metropolitan Waterworks were purchased for the sum of £220,000 under Act No. 19 of the 60th Victoria, assented to 8th October, 1896.

Under the provisions of this Act the Metropolitan Waterworks Board were empowered, subject to the approval of the Governor, to borrow £350,000 at the rate of 4 per cent. per annum, the money so borrowed to be expended in the first place on the purchase of the works, which then belonged to a private corporation, the balance being devoted to their extension or to such other purpose as the Governor might, on the recommendation of the Board, authorise and approve. Amending Acts, passed in 1898 and 1902, sanctioned an increase of the capital to £420,000.

The Board, which consisted of Messrs. W. Traylen (chairman), W. H. Hargrave, and T. C. Villiers, was superseded in November, 1904, by the Hon. the Minister for Works; and at the present time, July, 1905, the administration is still in his hands.

The sum of £423,724 was expended to the 30th June, 1905, on construction, being in excess of authorisation by the sum of £3,724, which amount has been expended out of receipts; and an amount of £235,663 has been expended on maintenance since the purchase of the works from the company.

The works are intended to supply the city of Perth and suburbs (including Subiaco, Leederville, Victoria Park, and Mount Lawley) with water for domestic purposes.

The main source of supply is the Victoria Reservoir, which has a capacity of 212,000,000 gallons, and is situated on Mundy's Brook, in the Darling Range. This quantity is augmented by a

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further supply taken from four artesian bores, situated two in Perth, one at Leederville, and one at Subiaco, yielding a total quantity of 2,000,000 gallons per day.

It has been proposed to construct a dam on the Canning River, with a gross storage capacity of 1,554,452,000 gallons. This proposal has not, however, as yet been authorised.

At the present time alterations are proceeding in connection with the bores to concentrate the pumping, and to increase the supply of the best artesian water at a reduced cost.

There are two mains from the Victoria Reservoir to the two service reservoirs on Mt. Eliza, situated in King's Park (capacity 3,000,000 gallons), which are respectively 21in. and 12in. in diameter, and 15½ and 17 miles in length. The total mileage of reticulation pipes in Perth and suburbs, from 3in. to 12in., at the 30th June, 1904, was 84 miles 9 chains. In addition to cast iron and steel mains there are 35½ miles of tube mains from ¾in. to 2in. diameter.

During the year 1904-5 the Board supplied 756,000,000 gallons to its consumers; of this quantity 481,500,000 gallons were obtained from the Victoria Reservoir (with overflow), and 274,500,000 from the four bores mentioned.

For the past five years a system for purifying the water, devised by the engineer, Mr. Jas. Faulkner, M.I.E., of New South Wales, has been conducted with great success.

The revenue of the Board from the 1st November, 1896, to the 30th June, 1905, was £242,086.

Fremantle Water Supply.

The three municipalities (Fremantle, East Fremantle, and North Fremantle) are supplied from bore holes at the Pumping Station in Hampton Road. The water issuing from the bore is treated with lime and aerated, and then lifted by triple expansion condensing engines to a covered reservoir on Monument Hill, which has a storage capacity of one million (1,000,000) gallons. From this reservoir the reticulation in the three municipalities—49½ miles in extent—is supplied with clear and absolutely pure water, which is used for domestic and commercial purposes, including shipping, railway, municipal, and private requirements.

The population supplied amounts to about 22,000, and the average daily consumption is 29 gallons per head.

Claremont Water Supply.

Claremont is supplied from artesian sources, the present bore being 1,506 feet deep, and having a flow of 610,000 gallons per day. The water is pumped from a concrete pump well with a triple expansion Worthington pump to a service tank near Osborne.

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A second bore is now being sunk with a view to supplementing the supply.

From the service tank the supply is distributed through 25½ miles of reticulation pipes for domestic purposes, nearly 900 services being now connected in the district.

WATER SUPPLY FROM RESERVOIRS OR WELLS (EXCLUSIVE OF PERTH, FREMANTLE AND CLAREMONT, FOR WHICH *see* SEPARATE STATEMENTS).

Locality.	Object of Work.	Nature of Work.	Capacity of Reservoirs in gallons.	Remarks.
Wyndham ...	Domestic and stock supply	Well, windmill, pump, and equipment	... ...	Well, 97ft. deep.
Derby ...	Domestic and stock supply	Well, windmill, pump, and equipment	1,800	
Do ...	Jetty and domestic supply	Well, windmill, pump, and equipment	25,000	Completed.
Broome ...	Jetty and domestic supply	Well, windmill, pump, equipment, and reticulation	15,000 & 25,000	Further reticulation and connection in hand.
Point Sampson	Stock supply ...	Well and equipment	43ft. deep 5ft. diam.	Supply, 800 gallons per hour.
Cossack Common	do. ...	do. do.	50ft. deep, 5ft. x 3ft. 4in., with drives	Supply, 45 gallons per hour
Newcastle ...	Domestic supply	Reservoir and catchment drains	1,250,000 ...	Completed.
Northam ...	Stock supply ...	Dams in river ...	... ...	Drawings prepared and handed to Town Council.
Goomalling ...	Domestic supply	New well	... ...	Boring to locate same in progress.
Greenbushes	do. do.	Well	... ...	Sunk and timbered.
Greenbushes, South	do. do.	do.	... ...	Sunk and timbered and reticulation proposed.
Mary Ann Harbour	do. do.	do.	... ...	Well sunk.
Ravensthorpe	do. do.	Well and condenser	... ...	Well sunk, condenser erected.
Harbour View	do. do.	do. do.	... ...	Well sunk, condenser erected.
Albany ...	do. do.	Pumping and gravitation	253,000 and 67,000	Surveys made, gauging work carried out, reports and estimates furnished; scheme in abeyance.
Beverley ...	do. do.	Sinking well, installing pumping plant, etc.	70ft. deep, 6ft. x 4ft. section	Complete, supply, 55 gallons per hour.
Esperance ...	Shipping supply	Well, pump, windmill, piping, etc.	8,600	Lately repaired.
Guildford ...	Domestic supply	Designs for reticulation from artesian bore	... ...	Prepared and handed to Municipal Council.

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6.—WESTERN AUSTRALIAN STOCK ROUTES.

(Information supplied by Public Works Department.)

There are six (6) recognised stock routes in this State, namely, Kimberley to De Grey; De Grey to Peak Hill; De Grey to Mingenew; Fortescue to Cue; Peak Hill to Leonora; and Coolgardie to Eucla. The equipment of these routes commenced about ten years ago; previous to which time they cannot be said to have existed. Their great length precludes any detailed description, especially as they vary in a very large measure according to the climate.

Kimberley-De Grey Stock Route.—This route starts from Yeda station, about 20 miles South of Derby, and proceeds thence to Broome, continuing in a W. by S. direction from Broome to the De Grey River. It follows the sea-coast at a distance of from two to ten miles, along that part known as the Ninety-mile Beach. The country which it traverses is marshy. The feed grass is what is called bundle grass; the wells, of which there are 40, are 10 to 15 miles apart, and, although as a rule shallow, are, on the whole, of good quality. The length of the route is about 350 miles.

De Grey-Peak Hill.—This route starts from Pardoo station, where the Kimberley to De Grey route and the De Grey to Mingenew route meet, and proceeds E. by S. along the De Grey River for nearly 100 miles, when it turns South for another 100 miles or thereabouts to Nullagine. In this distance there are no wells, permanent water being found when required in the bed of the river. From Nullagine to the Murchison there are 20 wells of varying depth, all of good quality. The climate and country naturally vary according to the latitude. The length of the route is about 350 miles.

De Grey-Mingenew Route.—This route commences at Pardoo, the termination of the Kimberley-De Grey and the junction of the De Grey-Peak Hill, and proceeds W. by S. 250 miles to the Fortescue River, running as a rule close to the coast in this part; thence it turns South, and runs irregularly, terminating at Mingenew, on the Midland Railway. Owing to its enormous length (over 900 miles), it will be easily realised that there are numerous changes in aspect of country, class of vegetation, climate, etc. There are some 80 wells besides permanent pools in the river beds, so that no watering stations are more than 15 miles apart.

Fortescue-Cue Stock Route.—This route starts from the Fortescue River, diverging from the De Grey-Peak Hill route at that point, and proceeds irregularly S.S.W. to Cue. It is about 400 miles long, and has 30 wells, and others are at present being sunk on the Southern portion.

Peak Hill-Leonora Stock Route.—This route starts from the Murchison, at the termination of the De Grey-Peak Hill route, and runs in a South-Easterly direction to Leonora. It is about 300 miles long, and has 30 wells.

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Coolgardie-Eucla Stock Route.—Until 1903 this was never regarded as a stock route, there being no settlement along it except at two points, Balladonia and Mundrabilla. It presents aspects altogether different from the other routes, which are all easily watered by wells of good water. All wells sunk up to date along this route, except at two points, have, up to the present, unfortunately, proved salt, as the country is otherwise magnificent from a pastoral point of view, being for hundreds of miles covered with fodder plants and bushes of various sorts. In 1903 an artesian bore was put down at Madura by the Public Works Department, 2,001 feet deep, with a flow of 70,000 gallons per diem, the quality of the water obtained being good for stock. A well has also been equipped at Eucla, and an underground tank is now being sunk 40 miles from Eucla, whilst several others are projected. The length of this route is about 500 miles, and it will no doubt, when completed, be of great use for the transport of stock to the Eastern Goldfields.

It will be observed from the above that an enormous amount of work has been done on these routes, which work is also still proceeding.

7.—ROYAL MINT.

(PERTH BRANCH.)

(Information supplied by J. F. Campbell, Esq., Deputy Master.)

Early in 1894 an application was made by the Government of Western Australia to the Imperial Government for the establishment of a branch of the Mint at Perth. The assent of the Lords of the Treasury and of the Secretary of State for the Colonies having been obtained, the Parliament of Western Australia passed an Act entitled "The Perth Mint Act, 1895," by which "there shall be payable to Her Majesty in every year out of the Consolidated Revenue Fund of Western Australia a sum or sums not exceeding in the whole in any year the sum of ten thousand pounds, for defraying the salaries, contingencies, retiring and other allowances and expenses connected with the establishment of the Perth Branch of the Royal Mint," and "all sums by way of fees, dues, or charges lawfully received or collected at the Perth Branch shall be from time to time accounted for and paid over by the Deputy Master . . . . to the Colonial Treasurer, to be paid by him into the Consolidated Revenue Fund of the Colony."

To meet the cost of treating the increased output of gold, the Mint annuity was subsequently raised to £20,000 a year (Perth Mint Act, of 2nd August, 1899).

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Public Buildings in Perth.

1. Colonial Hospital. 2. Public Offices (Cathedral Avenue). 3. Royal Mint.

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On the 13th October, 1897, Her late Majesty the Queen passed an Order in Council, approving a draft proclamation establishing a branch Mint at Perth. This proclamation was published in the *London Gazette* on the 15th October, 1897, and was promulgated in Western Australia on the 13th July, 1898. It ordains, among other things, that "The gold coins coined . . . . at the branch Mint at Perth shall be deemed to have been issued from our Mint, and shall be current and a legal tender in like manner, and to the like extent as if they had been coined and issued in England."

The necessity for having a branch of the Royal Mint, and not a local institution, is due to the fact that coinage is one of the prerogatives of the Crown, and can only be conducted in the British dominions by officers under the direct control of the Lords Commissioners of His Majesty's Treasury. The Mint buildings are colonial property, but the Mint as an institution for the conversion of bullion into coin is in every sense a department of the Imperial Government. When the application for the establishment of the branch Mint was made, the production of gold in Western Australia was in its infancy, and it was expected that the out-turn of the precious metal would reach a total of £1,000,000 during the then current year, 1894, an expectation which was not fully realised, the value of the metal produced being about £880,000 only. Since that time, however, the output of gold has been increasing rapidly; that for the year 1904 amounted to a little more than £8,424,000.

The main object in view in having a Mint established in the Colony was to provide a market where the miner would be able to dispose of his gold at the sterling value of the metal (£3 17s. 10½d. per ounce of gold 11/12ths fine) and would obtain that value after the delay of only a few days, instead of having to make the best bargain he could with his bank or with a private dealer. Prior to the opening of the Mint a miner, who did not care to accept a rough-and-ready valuation of the metal he had won, was compelled to either arrange for it to be sent to one of the existing Mints in Australia, or to some firm of refiners in London or elsewhere. Either alternative involved delay and considerable expense in freight, loss of interest, etc.

The opening of the Mint has therefore directly benefited the mining industry and indirectly the State as a whole. When considering the value of the Mint to the State it must not be lost sight of that the form into which most of the metal is converted is one which has advantages over any other shape in which gold can be commercially dealt with. Unless exported, they bear a Government stamp, as in the case of those issued by the Australian Mints for use in India, and those made at the Mints of the United States, are not saleable without being assayed and re-assayed almost every time they change hands. The sovereign, however, is not only the standard of value and the coin of current use in the United Kingdom and of most of the British colonies, but is accepted as bullion throughout the world without question as to fineness.

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The Mint was opened by His Excellency Sir Gerard Smith, the then Governor of the Colony, on the 21st June, 1899. The Receipts, Issues, and the Revenue from the Mint charges, etc., from that date to the 31st December, 1904, were as follows :—

Period.	Receipts of Metal.	Issues.		Revenue.
		Coin.	Bullion.	
	ozs.	£	£	£
1899 (21st June to 31st Dec.) ...	209,410	690,992	3	4,753
1900	581,200	1,945,777	29	8,440
1901	860,373	2,889,333	21,225	13,608
1902	1,354,632	4,289,122	385,987	23,759
1903	1,457,663	4,674.783	489,553	31,966
1904	1,403,347	4,536,771	424.415	35,630
Total	5,866,625	19,026,778	1,321,212	118,151
		20,347,990		

8.—THE WESTERN AUSTRALIAN MUSEUM AND ART GALLERY.

(Information supplied by Bernard H. Woodward, Esq., F.G.S., C.M.Z.S., etc., Director.)

The Museum is situated about 250 yards North of the Perth Central Railway Station, at the corner of James and Beaufort Streets. The entrance is from Beaufort Street.

As its name implies, it is essentially a Western Australian Museum, the collections already containing specimens of the greater number of the indigenous mammals and birds, as well as of many of the reptiles, fish, etc. Full particulars of these will be found in the chapters on "Fauna," and of the timbers and plants under "Forestry" and "Flora" of the Year Book, 1900-1, and have been reprinted in "Natural History Notes."

In the year 1860 a number of the residents of this State resolved to establish a Museum, and for that purpose opened a subscription list, obtaining altogether the then large sum of £340 19s. 11d., for it must be borne in mind that 40 years ago the population (15,227) was small, scattered, and far from wealthy. The list, however, was a long one, showing how general was the interest taken in the movement.

To the then Surveyor-General, Captain John Septimus Roe, R.N., who died in 1878, at the age of 81 years, must be accorded the chief credit for the work, for he, in addition to subscribing, gave valuable collections, and devoted much time to their arrangement.

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The Museum thus formed was attached to the Swan River Mechanics' Institute until 1892, when the Government purchased the collection for £400, so that it might be incorporated with others. In 1881, the Rev. C. G. Nicolay had, at the suggestion and with the help of the late Sir W. C. F. Robinson, established a Geological Museum in the Old Guard Room at Fremantle, where he arranged and added largely to the geological collections made by Dr. F. Von Sommer; by Messrs. Gregory Bros.; by Mr. H. Y. L. Brown, F.G.S. (now Government Geologist of South Australia); and by the late Mr. E. T. Hardman, F.R.G.S.I., Government Geologist of Western Australia in 1882-3. The collection in the Fremantle Museum was, in 1889, transferred to the charge of Mr. Harry P. Woodward, F.G.S., then Government Geologist, and was removed to Perth and placed in the room formerly used as the High Court of Justice (now the Ethnological Gallery), Mr. Bernard H. Woodward, F.G.S., C.M.Z.S., being appointed Curator of the Geological Museum. The title was, in 1892, abbreviated by the omission of the word "Geological," when, as before mentioned, the Government purchased the museum of the Swan River Mechanics' Institute, as the collection then obtained included Zoological, Botanical, and Ethnological, as well as Geological, specimens.

In the same year, the late Colonel Phillips, then Commissioner of Police, deposited in the Museum the valuable collection of native weapons and implements that had been gradually got together by his department.

In 1895 the control of the Museum was transferred from the Hon. the Minister of Mines to a committee nominated by the Government. Two additional galleries were then added, one for zoology, opened by His Excellency the Administrator, Sir A. C. Onslow, on the 31st July, 1895, and the other for Art, the latter of which was not opened until the following year. The Government then increased the annual grant from £200 to £4,000 per annum, at which amount it remained until 1897-98, when it was reduced to £3,000, but subsequently increased to £3,500 in 1899-1900, and then further to £3,800 in the ensuing year, at which figure the annual grant at present stands.

In 1897 Parliament agreed to the erection of further buildings, and a substantial stone edifice of two stories, containing two galleries, 132ft. by 38ft., with offices and store rooms in the basement, was erected at a cost of £20,000. The ground floor and basement were temporarily lent to the Victoria Public Library until its own building should be erected, for which purpose Parliament, in 1900, voted the necessary money, as also at the same time that for the building of an Art Gallery, which is to comprise two floors 150 feet long. The foundation stone of this wing was laid by H.R.H. the Duke of Cornwall and York on the 25th July, 1901, but nothing further has, as yet, been done, although the galleries are urgently needed. At the present time the various collections of objects of Art, of Ethnology, and of Natural History have had to be arranged in the manner best

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suited to their display in the limited space available, rather than in strict accordance with scientific order.

The collections in this Museum are arranged in three sections, viz., Art, Ethnology, and Natural History.

Art Section.—During the past year many important additions have been made, notably in the oil paintings, namely, works by Vandyck, Gainsborough, Lawrence, Wilson, Maratti, Bonnington, Sartorius, Linton, Orrock, and others; and in the sub-section of "Arts and Crafts," of Hammered Iron, by Nelson Dawson and Starkie Gardner; Cloissonné Enamels, by Edith Dawson; China, from Cauldon; Pottery, from the Della Robbia Factory, Meissen, Ceylon, etc.; Glass, from Venice and Bohemia.

Ethnology.—The collection of Western Australian Implements and Weapons has been largely increased, and many specimens added to the general collection.

The Early History of Western Australia is illustrated by numerous relics, the most interesting of which are those of the Dutch vessel "Zeewyk," wrecked on the Abrolhos in 1727. They were unearthed most carefully by Messrs Broadhurst, McNeil & Co., and it is through their courtesy that this Museum has been enriched by these valuable additions.

Natural History.—Reference to the Mammals and Birds has already been made. Of forms not found in Australia, all the more important orders are now represented.

A most valuable "index" case has been added to the Mollusca. It contains sections of shells with all the parts named, so that students can easily comprehend the various technical terms used in text books.

The Paleontological collections contain the historical collection of 3,400 fossils made by the late Professor Tennant; of these the vertebrates were named by the late Mr. Wm. Davies, F.G.S., and the invertebrates by the late Dr. S. P. Woodward, F.G.S., both of the British Museum. This collection had been in the Geological Department of the British Museum for some years, as its purchase was contemplated by that institution because it contains so many "type" specimens.

The chief interest, however, of most visitors to the State centres in the rich gold specimens from the Coolgardie, Yilgarn, Murchison, Pilbarra, Roebourne, Kimberley, and other goldfields. These have nearly all been presented by directors of mines or by residents in the State.

As a matter of convenience the rock specimens of the State are arranged geographically, while the minerals are arranged as follows:—Metallic ores, gold, tin, copper, antimony, zinc, lead, iron, plumbago (black lead), earthy minerals, asbestos, mica, etc., as being the best for practical purposes, while the Woodwardian collection of ores and minerals from all parts of

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the world is arranged on the chemico-crystallographic system adopted in the British Museum.

The Herbarium has been re-arranged, and all the plants remounted. These can be seen on application.

Lectures.—A series of Free Popular Lectures, alternately on Science and on Art, have been delivered fortnightly during the winter months of 1905. The venture has proved a decided success, the lectures having been very well attended.

The Museum is open to the public from 10 a.m. to 5 p.m. every week day except Friday, and on Sunday afternoons from 2·30 to 5. Friday is reserved for cleaning in the morning, and for students (permission to be obtained from the Director) who desire to copy the works of art, or make drawings of the Natural History specimens, a privilege which is much appreciated.

The average attendance of visitors is about 5,000 per month. That on Sundays varies from 300 to 800.

9.—PUBLIC LIBRARY OF WESTERN AUSTRALIA.

[Founded 1887.]

(Compiled by J. S. Battye, B.A., LL.B., Chief Librarian.)

The Estimates for 1887, laid before the Legislative Council in 1886, contained provision for the sum of £5,000 to be expended on the celebrations in Western Australia of Her Majesty's Jubilee. As no decision was arrived at in the Council regarding the objects to which this money should be devoted, a Commission was appointed, consisting of members of the Council and other gentlemen, with the then Governor, Sir Frederick Napier Broome, as chairman, to draw up a scheme for the erection of a fitting memorial in honour of the event. The Commission met on the 31st December, 1886, and various propositions were made, but ultimately it was decided that £2,000 of the amount should serve as Western Australia's donation towards the Imperial Institute, and the balance should be devoted to the foundation of a Free Public Library to be established in Perth.

A committee was then appointed by His Excellency the Governor to have charge of the arrangements in connection with the choice of site, preparation of plans, and the foundations of the institute; and they, in their report to the Legislative Council, recommended that the site of the old Government Boys' School in St. George's Terrace would be the most suitable on which to build the library; but, owing to the scarcity of funds, they suggested that the foundations only of the building be laid, and that the premises situated almost opposite, lately used by the Western Australian

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Bank, should be leased, and books to the value of £1,000 be ordered from England and placed therein, to serve as a temporary library, pending the completion of the structure.

The recommendations of the committee were, in the main, adopted, and on the 21st June, 1887, the foundation-stone of the institute was laid by His Excellency the Governor, in the presence of representatives of all the public bodies of the Colony. The Victoria Public Library Bill was placed before the Legislative Council soon afterwards, but, although it was passed through all stages, it ultimately failed to become law.

A committee of management, consisting of Sir Malcolm Fraser, K.C.M.G. (chairman); Septimus Burt, Esq., Q.C.; J. W. Hackett, Esq., M.A.; M. F. A. Canning, Esq., and F. J. Hickling, Esq., was appointed in May, 1888; and on the 26th January, 1889, the library was opened with 1,796 volumes on the shelves. Mr. W. C. Townsend was appointed clerk to the committee, he being succeeded in March, 1890, by Mr. Basil Porter, who held the position until 1894, when he resigned owing to loss of eyesight, and the present librarian was appointed.

The original site being considered unsuitable, the Government reserved a large block of land at the corner of Beaufort and James Streets as the permanent site for a building to include the Library, Museum, and National Gallery, and in 1896 a commencement was made with the first portion of such a structure. This was intended to be temporarily the home of the Library, but ultimately for the use of the Museum.

The foundation-stone previously laid in St. George's Terrace was removed to its new position, a further stone commemorative of the Diamond Jubilee of Her late Majesty being placed with it, and the two were unveiled by His Excellency the Governor, Sir Gerard Smith, on the 22nd June, 1897, the function forming part of the celebration in Western Australia of the completion of the sixtieth year of Her late Majesty's reign. In August, 1897, the Library was moved from the old premises of the Western Australian Bank in St. George's Terrace into the basement, and twelve months later to the ground floor of that building.

In 1902 the rapid growth of the Library caused a demand for more extensive accommodation, and in 1903 the second portion of the comprehensive scheme was erected by the Government. This forms the first part of the permanent library, and contains accommodation for 100,000 volumes, as well as ample and well ventilated space for readers.

By resolution of the committee, confirmed by the Governor-in-Council, the word "Victoria" was, in April, 1904, deleted from the name of the institution, which in future will be known as "The Public Library of Western Australia."

The present committee of the institution consists of: Hon. J. W. Hackett, M.A., LL.D., M.L.C. (chairman); Hon. Sir George Shenton, M.L.C.; Hon. Charles Harper, M.L.A.; His Honour Mr.

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Justice McMillan; M. F. A. Canning, Esq.; Dr. H. F. Harvey; Dr. H. T. Kelsall; and the Hon. H. Briggs, M.L.C.

The following tables will show the growth of the Institution:—

Year.	Volumes on Shelves.	Increase during Year.
1895-6	13,035	4,735
1896-7	16,245	3,210
1897-8	23,500	7,255
1898-9	33,612	10,112
1899-1900	38,728	5,116
1900-1	43,940	5,212
1901-2	47,142	3,202
1902-3	51,276	4,134
1903-4	59,217	7,941
1904-5	64,230	5,013

Year.	Visitors.
1895-6	41,767
1896-7	56,523
1897-8	69,574
1898-9	106,339
1899-1900	82,414
1900-1	121,253
1901-2	154,590
1902-3	213,969
1903-4	181,956
1904-5	195,525

Classification of Books in Library, 30th June, 1904, and 30th June, 1905:—

Subject.	Volumes.	
	1904.	1905.
Theology	3,045	3,489
Philosophy	674	688
Literature	13,837	14,802
History	8,129	8,707
Biography	2,549	2,848
Science	7,200	7,855
Arts and Trades ...	9,432	10,368
Social Science	13,284	14,388
Newspapers	1,067	1,085
Total	59,217	64,230

NOTE.—These totals do not include Pamphlets and Parts, of which the library contains about 17,000.

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10.—THE OBSERVATORY.

(By W. E. Cooke, Government Astronomer.)

Towards the close of 1875 the Hon. Sir Malcolm Fraser, K.C.M.G., then Surveyor General, established a meteorological station, fitted with first-class instruments, in connection with his department. Since then, as opportunity offered, various second-class stations have been added, equipped with the following instruments: Mercurial barometer, dry and wet bulb, and maximum and minimum thermometers, wind vane, and 8-inch rain gauge; and, in addition, rain gauges have been freely distributed to reliable observers throughout the State.

In 1896 the building of an Astronomical Observatory was commenced on Mt. Eliza, a hill overlooking the city, and the Meteorological Department was transferred from Mr. Malcolm A. C. Fraser, the then Meteorological Registrar, in whose immediate care the work of the department had been placed since its inception as above mentioned, to the Government Astronomer. Many fresh stations have been equipped, and every observer is visited occasionally, an inspection being made at least once a year to every station South of the tropics, except a few outlying ones in the extreme South-East, which are very difficult to reach. There are now 37 stations of the second order, 14 stations equipped with maximum and minimum thermometer and Stevenson's Screen, in addition to the rain gauge (these are called climatological stations, and it is proposed to increase their number as rapidly as circumstances permit), and 371 furnished with rain gauges only.

The equipment of the Perth Observatory is as follows:—

Astronomical.—Astrographic equatorial of 13 inches aperture, with a 10-inch visual, by Sir Howard Grubb; 6-inch transit circle, by Troughton and Simms; cœlostat, and 8½-inch reflecting telescope; spectroscope; chronograph, fitted with Grubb's control; sidereal and mean time clocks and chronometers, etc. The transit room is of a new pattern, designed by Sir David Gill, Astronomer Royal at the Cape of Good Hope, and constructed by Sir Howard Grubb.

Meteorological.—Barograph (Redier); thermograph (Richards); sunshine recorder; set of platinum resistance thermometers; standard barometer; standard thermometer; dry and wet bulb thermometers; maximum and minimum dry and wet self-registering thermometers; solar radiation self-registering thermometer; anemograph; evaporation tank; pluviometer; evaporimeter; rain gauge (Todd's), eight inches in diameter; ozone cage (Sir James Clarke's); Negretti and Zambra's papers, and scale of tints; seismograph (Milne's pattern).

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The hours of observation for record purposes are 9 a.m. and 3 p.m. These are two of the hours adopted by the Intercolonial Meteorological Conference of 1881.

The barometers used are in all cases mercurial, and the readings are corrected for index error, temperature, and mean sea level.

In astronomy the main work consists of this State's contribution to the International Photographic Durchmusterung. The zone of the sky allotted to Perth lies between the parallels of 32deg. and 40deg. South declination. The astrograph is used for obtaining two series of photographs, each plate covering a celestial area of 2deg. square.

For the first series three exposures of six minutes, three minutes, and 20 seconds respectively are given on the same plate, the telescope being moved very slightly in declination between successive impressions.

The positions of all the stars which give satisfactory images will be measured and published. This publication, in conjunction with a similar one to be issued by 17 other co-operating observatories, will contain the positions, reduced to the 1st of January, 1900, of all objects in the sky as bright as a star of the 11th magnitude. The second series of plates receive three exposures of half an hour a-piece, the telescope being slightly moved between successive impressions, so that the image of each star, when closely examined, consists of three dots forming the points of an equilateral triangle. These plates will not be measured, but it is hoped that they may in time be printed in an enlarged form for distribution. The positions obtainable from these photographs will of course be only relative, and in order to make them absolute it is necessary to observe a few stars in each area, and obtain their positions by means of the transit circle. For this purpose three stars of a magnitude not less than the ninth are selected, in each degree square, and the right ascensions and the declinations of these standard stars are being obtained by observations with the transit circle.

This represents the main astronomical work of the Observatory.

In addition, a very practical feature is the maintenance of correct time, which, prior to the establishment of the Observatory, was an unknown quantity. The standard clock is regulated to keep the time of the 120th meridian (eight hours ahead of Greenwich), and by means of electric currents performs the following functions:—

(1.) It drops a time ball at 1h. daily at Fremantle, and at such other hours as may be asked for by commanders of mail steamers.

(2.) It drops a time ball in Hay Street, not far from the Town Hall Clock, which now keeps good time.

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(3.) It controls a public clock at the front gates of the Observatory, immediately opposite the gates of the King's Park.

(4.) It controls a parent clock at the principal Railway Station, Perth, whence signals are transmitted once a day throughout the Railway Department of the State.

(5.) It controls two clocks in the Telegraph Operating room, Perth, whence signals are daily transmitted to every Telegraph Station throughout the State.

(6.) It fires Time Guns at 1 p.m. daily at Perth and Fremantle.

The admission of visitors to inspect the instruments and view such of the Heavenly bodies as were favourably situated for observation, has in the past been quite a feature of the work, but facilities are now of necessity somewhat restricted. Three evenings per month are still reserved for this purpose, previous application in writing to the Government Astronomer being required; and on every Tuesday afternoon the grounds are open to the public and an assistant is ready to show and explain the uses of the various instruments.

The Meteorological work consists in the maintenance and occasional extension of the system of observations already established, every means being taken to ensure the accuracy of the records. Readings of barometer, thermometers, wind, rain, weather, and state of the sea are telegraphed daily not only from all the stations in this State, but from a selected number in other States, and from these a general weather report, a special rainfall report, an isobar map, and a forecast of the probable weather for the next 24 hours are prepared. These are all exhibited at several places in both Perth and Fremantle, and the forecast is, in addition, telegraphed to several seaports. A copy of the map and forecast is also presented to the commander of any mail boat which may happen to be in Fremantle at the time of issue.

A number of stations in this State also telegraph readings at 3 p.m., and from these a supplementary report is prepared and contributed to the daily papers for the next morning's issue.

The forecasts on the whole have been so correct and popular that several places have asked for special ones to be prepared, and at present the following are distributed daily :—

(1.) General forecast for the whole State, issued at noon, published in the *Daily News*, exhibited at many public places in Perth and Fremantle, and telegraphed to several seaport towns.

(2.) Special forecast for the Coolgardie Goldfields, wired at noon, and published in the Boulder *Evening Star*.

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(3.) Special forecast for the Murchison Goldfields, wired daily at noon, and publicly exhibited at the Cue and Peak Hill Post Offices.

(4.) General forecast for the whole State, issued at 4 p.m., to cover the weather for the following day, published in the Perth daily papers.

(5.) Special forecast for the next day for the Coolgardie Goldfields, wired at 4 p.m. to the daily press at Coolgardie, Kalgoorlie, Menzies, and Kanowna.

(6.) Special forecast for Perth and its immediate neighbourhood only, telephoned daily at 9 a.m. and exhibited, in conjunction with a pictorial illustration, in the vicinity of the Town Hall, in Hay Street.

11.—THE ZOOLOGICAL AND ACCLIMATISATION GARDENS.

(Particulars supplied by the Director, Zoological Gardens.)

The Zoological Gardens are located in South Perth. The rounds, comprising 42 acres, have been cleared, fenced, and laid ut suitably for the proper reception of a large and varied collection f animals and birds. Amongst the animals bred in the Gardens ince their establishment may be mentioned tigers, leopards, ingoes, buffalo, various cattle, deer, wild swine, whilst many less nportant animals have also proved prolific. Many birds have also een bred, including ostriches and emus. An excellent supply of rtesian water was struck in the Gardens on 27th February, 1899, t a depth of 1,860ft. The flow is estimated at 350,000 gallons per ay, and as the water is warm, being 103deg. at the bore mouth, it very suitable for keeping up the temperature of reptile and other ouses that require artificial heat. The management of the Gardens vested in the Acclimatisation Committee, of whom the Hon. W. Hackett is chairman. The Director of the Gardens is Mr. . A. Le Souëf. The gardens were opened to the public on 17th ctober, 1898, and during the year 1904 no less than 71,000 ople paid for admission.

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12.—THE KING'S PARK.

The King's Park, on Mt. Eliza, commands an extremely fine panoramic view of Perth, its surroundings, and the lovely stretches of the Swan River. It contains upwards of 1,000 acres. Everything has been done to preserve the native trees and flora, so that the wild flowers and shrubs are a delightful feature of the Park. The first non-indigenous tree—a Norfolk Island Pine—was planted by Sir John Forrest, opposite the principal pavilion, in August, 1895. In August, 1897, the main drive from the Havelock Street entrance to Crawley, a distance of nearly three miles, was completed and opened. This practically constituted the opening of the Park to the public.

The present Board consists of the Rt. Hon. Sir John Forrest, P.C., G.C.M.G.; Dr. J. W. Hackett, M.L.C.; the Hon. Sir George Shenton, M.L.C.; Mr. H. Daglish, M.L.A.; G. T. Poole, Esq.; A. Lovekin, Esq.; D. W. Harwood, Esq.; and the Mayor of Perth, *ex officio*. The original Board was appointed in 1896.

A vast amount of work has been accomplished in improving and beautifying the Park. Some miles of pathway have been laid down, so as to provide access to the many interesting points of view in the Park.

The "May" drive, a distance of three miles, completed in July, 1901, was opened by H.R.H. the Duke of York, during the royal visit to the State. This is a particularly fine roadway, opening up the central portions of the Park. On commanding positions, overlooking the river, are two fine pavilions; a charming tea-room on the terraces below the cliff (one of the most attractive spots in the Park) and a very pretty and ornamental lodge at the main entrance, have been erected. A caretaker's cottage also stands at the entrance gates, Rokeby Road, in the vicinity of which a further tea room is being constructed.

"The Fallen Soldiers' Memorial," standing to the left of the drive, a short distance from the main entrance, was erected by voluntary contributions and £ for £ grant from the Government. It is in memory of the West Australian soldiers who lost their lives during the South African War. To collect the funds for its erection, a citizens' committee was formed in 1900, and competitive designs were invited, Mr. J. White, sculptor, Annandale, New South Wales, being the successful competitor.

The memorial consists of a bronze group on stone pedestal, with four bronze panels depicting various scenes during the war, the foundation-stone of which was laid by His Royal Highness the Duke of Cornwall and York in July, 1901. The memorial was unveiled by His Excellency Sir E. A. Stone, Administrator, in September, 1902.

In October, 1903, a very fine marble statue, erected to the memory of the late Queen, was unveiled by His Excellency the Governor, Sir Frederick G. D. Bedford. It is of beautiful workmanship, by Mr. F. J. Wilkinson, the well-known sculptor of Esher,

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England, and was presented to the State by Mr. Allen H. Stoneham, of London.

Leake Memorial Fountain.—The memorial is of a semi-classic style of architecture, and was specially designed by Mr. J. W. R. Linton, artist, of Perth. It rests on two courses of finely-rubbed bluestone steps. It has four sides, and standing out from each corner is a pier consisting of pilaster, with moulded base and cap, supporting two coloured marble columns with carved caps and bases. There is a finely moulded cornice running round the whole memorial, which is capped by a solid marble dome, the top of which is 10 feet from the ground. On two opposite sides of the fountain marble basins project, the water being supplied through nickel-plated taps. The drinking cups, which are of plain but substantial design, are made of nickelled gun metal. The whole of the memorial, with the exception of the blue-stone steps and coloured marble columns, is made of white Sicilian marble, and covers a space of 9 feet square. The execution of the work was entrusted to the well-known firm of monumental masons, Messrs. Wilson, Gray & Co. On the front of the memorial an inscription in lead letters reads as follows:—

> "This fountain was erected by the State as a tribute to George Leake, C.M.G., K.C., M.L.A., Premier of the State from 27 May to the 21 November, 1901, and from the 23 December, 1901, to the time of his death, on the 24 June, 1902. It was during his Premiership that the May Drive was opened to the public by H.R.H. May, Princess of Wales, on the 23 July, 1901."

On the reverse side an inscription reads:—

> "On the second anniversary of his death this memorial fountain was dedicated to the use of the people of Western Australia by Admiral Sir Frederick G. D. Bedford, G.C.B., Governor of this State."

Water Supply.—An ample water supply is available for Park urposes, which greatly facilitates the planting and improvement of ıe Park generally.

Ornamentation.—An artificial gully, below the first pavilion, ıs been recently completed, and is a great additional attraction. ›me beautiful coral, and also many choice shrubs, have been ilised in its ornamentation.

General.—The Park may be reached by tram through Colin reet, and also on the Subiaco side by Rokeby Road. It is open ily from sunrise to 10 p.m.

Throughout the year thousands of visitors take advantage of › pleasure afforded by a stroll or drive through the Park, and › commanding and extensive view from the summit of Mount iza never fails to excite admiration.

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PART XIII.—MISCELLANEOUS.

1.—SHIPPING FACILITIES.

(Particulars furnished by the various Shipping Companies.)

The shipping facilities possessed by Western Australia are considerable, when the comparatively small population of the State is taken into consideration.

The following are the principal companies connected with the shipping trade and their present ruling passage and freight rates. These rates, however, it must be stated, are liable, in every instance, to alteration at any time as circumstances may seem to require:—

PENINSULAR AND ORIENTAL S.N. COMPANY.

The mail steamers of the Peninsular and Oriental S.N. Company, both homeward and outward bound, call in fortnightly at Fremantle.

Agent, Perth and Fremantle, J. M. Mare; Sub-Agents: Kalgoorlie, Hocking & Co.; Coolgardie, Whitby & Co.; Geraldton, Burns, Philp, & Co.; Northam, Throssell, Son, & Stewart; Albany, W. G. Knight & Son.

Rates of Passage Money from Fremantle.

To	First Saloon.		Second Saloon.	
	Single Passage.	Return.	Single Passage.	Return.
	£	£	£	£
Adelaide	7	10	6	9
Melbourne	9	13/10/-	7	11
Sydney	11	16/10/-	8	13
Colombo	26	39	20	30
Bombay and Calcutta ...	30	45	22	33
Penang	35	52	26	39
Singapore	37	55	27	40
Hong Kong	44	66	30	45
Shanghai	48	72	34	51
Nagasaki, Kobe, Yokohama...	49	73	35	52
Aden	37	55	25	37
Port Said	†67	100	34, 36, 38	57
*Brindisi, Marseilles	†71	106	36, 38, 40	60
Malta, Gibraltar	†71	106	36, 38, 40	60
London	†75	112	38, 40, 42	63

* Only first saloon passengers are conveyed by the express steamers "Isis" and "Osiris" between Port Said and Brindisi: second saloon passengers, therefore, travelling to Brindisi, have to pay an additional £4 to the above Marseilles fare each way. † There are a limited number of berths, for which the charge is from £5 to £10 less. Passengers are booked through to London, overland *via* Marseilles or *via* Brindisi, for full particulars in regard to which see Company's Australian Handbook.

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Return Tickets to Europe.

To Brindisi, Marseilles, Malta, or Gibraltar.		To or from London by sea, both ways.	
First Saloon. £106	Second Saloon. £60	First Saloon. £112	Second Saloon. £63

The above return tickets are available for 24 months from date of departure to arrival on return.

Round the World Tours.

Passengers can be booked round the world from Australian ports touched at by the Company's steamers, *via* London, Liverpool, New York, San Francisco, Honolulu, and Auckland, from £78 to £130.

Through tickets round the world *via* Vancouver, in conjunction with the Canadian-Australian Company and Canadian-Pacific line, *via* China, Japan, and Chicago, £157.

THE ORIENT S.N. COMPANY.

The mail steamers of the Orient Pacific line visit Fremantle on alternate weeks to those of the P. and O. Manager for Western Australia, Thomas Day, O.S.N. Co., Limited, Perth and Fremantle; T. Stodart & Co., Kalgoorlie.

Passage Money to and from London.

First Saloon	£65 to £75.
Second do.	£38, £40, £42.
Third do.	£17, £19, £21.
Return Tickets	£63 to £112.
Cargo Rates from London	about 70s. per ton.

Freight from Fremantle to London.

General and Rough Goods ...	30s. to 45s. per ton.
Wool (greasy)	about 0¼d. to 0⅝d. per lb.
Do. (washed)	about 0¼d. to 0⅝d. per lb.

Through cargo at special rates from *London* to North-West ports is accepted on a through bill of lading, said cargo being transhipped into coastal steamers at Fremantle. Cargo is also accepted through to Perth, Bunbury, Geraldton, and Albany.

Freights from London to Fremantle.

Cargo rates ... ... about 70s. per ton.

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Interstate Passenger Fares.

	From Fremantle.	
	£ s. d.	£ s. d.
	1st Class.	Return.
To Adelaide	7 0 0	10 0 0
Melbourne	9 0 0	13 10 0
Sydney	11 0 0	16 10 0
	2nd Class.	Return.
Adelaide	6 0 0	9 0 0
Melbourne	7 0 0	11 0 0
Sydney	8 0 0	13 0 0
	3rd Class.	
Adelaide	3 15 0	...
Melbourne	4 4 0	...
Sydney	5 5 0	...

These steamers do not carry Interstate cargo.

N.B.—All rates (passage and cargo) are liable to alteration at any time.

North German Lloyd.

The North German Lloyd Imperial mail steamers call at Fremantle every three weeks, outwards and homewards. On leaving Bremen, they call at Antwerp, Southampton, Genoa, Naples, Port Said, Suez, Aden, and Colombo. Homeward, same ports.

Single fares homewards ... ... From £15 to £75.
Return fares homewards ... ... From £27 to £112.

Fares to the Eastern States.

	1st Class.	2nd Class.	3rd Class
	£ s. d.	£ s. d.	£ s. d.
Adelaide, single	7 0 0	6 0 0	3 15 0
„ return	10 0 0	9 0 0	7 10 0
Melbourne, single	9 0 0	7 0 0	4 4 0
„ return	13 10 0	11 0 0	8 8 0
Sydney, single	11 0 0	8 0 0	5 5 0
„ return	16 10 0	13 0 0	10 10 0

First and second-class interstate return tickets are interchangeable with the P. & O., Orient, and Messageries Maritimes lines.

Freight homewards, as per arrangement.

Cargo is accepted to Fremantle, and also to Perth and Albany, on a through bill of lading, and forwarded by rail to Albany at

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heap rates. Cargo is also taken to and from London, being tranhipped at Bremen.

Australian Fleet. Mail Steamers.

			tons.
Grosser Kurfurst	Twin Screw	...	13,182
Barbarossa	"	...	10,915
Konigin Luise	"	...	10,711
Friedrich der Grosse	"	...	10,695
Bremen	"	...	11,570
Rhein	"	...	10,058
Prinz Regent Luitpold	"	...	6,288
Zieten	"	...	8,043
Gneisenau	"	...	8,081
Roon	"	...	8,022
Seydlitz	"	...	7,942
Scharnhorst	"	...	8,131
Darmstadt	"	...	5,012
Gera	"	...	5,005
Oldenburg	"	...	5,006
Weimar	"	...	4,996
Stuttgart	"	...	5,048
Karlsruhe	"	...	5,057

The first steamer of the company to call at Fremantle was the inz Regent Luitpold, in February, 1898.

The agents for the company for Western Australia are Ratazzi & Co., Mouatt Street, Fremantle.

Cargo Steamers.

Westfalen	Lothringen	Hessen
Franken	Schwaben	Thueringen.

Messageries Maritimes Company.

French Mail Steamers.

The steamers of the *Compagnie des Messageries Maritimes* call t Fremantle every four weeks.

Agents:—Fremantle—Dalgety & Co., Ltd.; Albany—Dalgety & Ltd.; Geraldton—Burns, Philp, & Co.; Kalgoorlie—Dalgety & Ltd.; Perth—Dalgety & Co., Ltd.; Bunbury—Dalgety & Co.,

Passage Money.

Between Fremantle and Marseilles, either way—

Single journey	£22 to £71.
Return do. (available for 24 months, including in and outward passages)	£33 to £106.

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Through ticket, Marseilles to London (24 hours by rail). 1st class, £5; 2nd class, £4; with the advantage to passengers of breaking their journey for a fortnight from Marseilles to London and *vice versâ*.

Luggage is conveyed free by steamer from Marseilles to London.

The following steamers are engaged in the Australian trade:—

	tons (gross).	tons (net).
Armand Behic	6,635 ...	2,819
Ville de la Ciotat ...	6,631 ...	2,821
Dumbea	5,876 ...	2,773
Nera	5,823 ...	2,826
Sydney	4,232 ...	2,077
Australien	6,570 ...	2,900
Yarra	4,255 ...	2,115

Cargo Freights.

Between London and Fremantle, from 50s. to 80s. per ton, according to season.

Wool, from ½d. to ¾d. per lb.

Interstate Passage Rates per Messageries Maritimes Company.

	1st Saloon.		2nd Saloon.		3rd Class.	
	Single.	Return.	Single.	Return.	Single.	Return.
From Fremantle to—	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Adelaide	7 0 0	10 0 0	6 0 0	9 0 0	3 15 0	5 13 0
Melbourne ...	9 0 0	13 10 0	7 0 0	11 0 0	4 10 0	6 16 0
Sydney	11 0 0	16 10 0	8 0 0	13 0 0	5 15 0	8 13 0
Noumea	22 0 0	33 0 0	17 12 0	26 8 0	8 16 0	13 4 0

And *vice versâ*.

The steamers of this line do not carry interstate cargo. Wine is supplied free to passengers in first and second saloons as well as third class. First-class passengers have also the right to certain drinks, such as grog, syrups, and lemonade, beer, marsala, sherry, and cognac.

The Messageries Maritimes Company have built special boats for the Australian service, of 7,000 h.p. each.

English stewards and English stewardess on every steamer English interpreter on express train from Marseilles to London.

This company has made arrangements with the Canadian-Pacific Railway for the issue of all-round-the-world tickets. Rate, £130.

Route, Messageries Maritimes.—London, Marseilles, Port Said, Suez, Aden, Bombay, Colombo, Fremantle, Adelaide, Melbourne, Sydney, Noumea, and *vice versâ*.

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Canadian-Pacific Railway.—Sydney, Vancouver, Montreal, Quebec, St. John (N.B.), Halifax, Boston, or New York, Liverpool or Southampton, London, or *vice versâ*.

For full particulars, apply to Dalgety & Company, Ltd., Fremantle, Perth, Kalgoorlie, Bunbury, Albany, and Geraldton, agents. Handbooks delivered free on request.

The "White Star" Line of Steamers.

For London via Port Natal and Cape Town.

Agents in Australia: Dalgety & Co., Limited.

The following steamers are dispatched monthly from Sydney and Melbourne for Albany, Port Natal, Cape Town, Teneriffe, Plymouth, and London:—

Afric	11,948 tons
Medic	11,984 „
Persic	11,974 „
Runic	12,482 „
Suevic	12,500 „

Accommodation for one class of passengers only.

Fares (subject to alteration).

From Sydney, Melbourne, or Albany. Each Adult.	London or Plymouth.		Durban or Cape Town.	
	Single.	Return (from Liverp'l).	Single	Return (from Cape Town).
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
ngle-berth inside room, upper deck, "Runic" (man only)	30 0 0	54 0 0	25 4 0	43 9 6
wo-berth outside rooms, upper deck, "Runic" and "Suevic"	27 0 0	48 12 0	21 0 0	37 16 0
wo-berth inside rooms, upper deck, "Runic" and "Suevic"	25 0 0	45 0 0	19 19 0	35 18 0
vo-berth outside rooms, main deck, all steamers	24 0 0	43 4 0	18 18 0	34 0 6
vo-berth inside rooms, main deck, all steamers	23 0 0	41 8 0	17 17 0	32 2 6
ree-berth inside rooms, main deck, "Runic" and "Suevic"	23 0 0	41 8 0	17 17 0	32 2 6
ur-berth outside rooms, main deck, all steamers	23 0 0	41 8 0	17 17 0	32 2 6
ur-berth inside rooms, upper deck men only), "Afric," "Medic," "Persic," and "Suevic"	23 0 0	41 8 0	17 17 0	32 2 6
ur-berth inside rooms, main deck, ll steamers	21 0 0	37 16 0	16 16 0	30 5 0
-berth inside rooms, main deck, Afric," "Medic," and "Persic" ...	19 0 0	34 4 0	14 14 0	26 9 0
ht and ten-berth rooms, upper eck (men only)	19 0 0	34 4 0	14 14 0	26 9 0

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Fares for Teneriffe same as London.

Children between three and 12 years of age, travelling with their parents, half price. One child under three years (no berth provided) free. If more than one child under three, one quarter fare each will be charged, exclusive of the one taken free.

Through Bookings—New York or Boston.—Passengers can be booked from Australia to New York or Boston by way of Liverpool (the Atlantic voyage being made by the famous steamers of the White Star Line American Service) at rates ranging from £25 2s. 6d. to £36 2s. 6d., according to accommodation selected in steamers of the Colonial service.

These rates include rail journey from London to Liverpool, also forwarding from New York to Boston, Philadelphia, or Baltimore, or from Boston to New York or Philadelphia, free of extra cost.

Should it be desired, second-class passage can be granted for the Liverpool-New York or Liverpool-Boston voyage, the through rates ranging from £27 10s. upwards. In the case of second-class booking for the Atlantic voyage, forwarding is allowed from New York to Boston or Philadelphia, or from Boston to New York, Philadelphia, or Baltimore, without extra charge.

The "Aberdeen" Line of Steamers.

London via Port Natal and Cape Town.

The following full-powered steamers are despatched from Port Melbourne, at advertised dates, for Fremantle, Port Natal, Cape Town, Teneriffe, Plymouth, and London:—

* Miltiades	6,700 tons.
* Marathon	6,700 „
Sophocles	4,748 „
Moravian	4,573 „
Salamis	4,508 „
Nineveh	3,808 „
Damascus	3,609 „

These steamers carry H.M. mails between South Africa and Australia.

Only first and third-class passengers are carried.

Agents in Australia: Dalgety & Co., Ltd. Owners: George Thompson & Co., London and Aberdeen.

* Twin-screw steamers.

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Fares from Sydney, Melbourne, Adelaide, Launceston, Hobart, and Fremantle.

SALOON.

	Single.	Return.
To Durban and Capetown ...	£31 10 0	£55 2 6
To Plymouth or London ...	£52 0 0	£90 0 0

THIRD CLASS.

	To Durban and Capetown.		To Plymouth or London.	
	Single.	Return.	Single.	Return.
In two-berth cabin ...	£17 17 0	£28 10 0	£20 0 0	£36 0 0
In four-berth cabin ...	15 15 0	26 10 0	18 0 0	32 8 0
Open berths (men) ...	13 13 0	24 10 0	16 0 0	28 16 0
Open berths (women) in Salamis, Moravian, and Sophocles only ...	13 13 0	24 11 5	16 0 0	28 16 0

Steamers at present do not call at Fremantle on the outward rip.

THE WEST AUSTRALIAN STEAM NAVIGATION COMPANY, LIMITED, AND THE OCEAN STEAMSHIP COMPANY, LIMITED.

The London agents for the above company are:—Messrs. Bethell, Gwyn, & Co., of 22 Billiter Street, E.C., and Trinder, Anderson, & Co., of Leadenhall Chambers, St. Mary Axe. Liverpool: Alfred Holt, & Co.

Agents in Western Australia:—Messrs. Dalgety & Co., Limited -Perth, Fremantle, Albany, Kalgoorlie, Geraldton, Carnarvon, ossack, and Port Hedland; Onslow—J. Clark & Co.; Broome—treeter & Co.; Derby—Adcock Bros. & Co.

These companies have four first-class vessels—the s.s. "Charon"; ie s.s. "Paroo," 1,718 tons net register (2,665 tons gross); the s. "Sultan," 1,270 tons net register (2,062 tons gross); and the s. "Minilya," 1,712 tons net register (2,744 tons gross). These ssels, which have been specially designed and constructed for this ade, combining passenger accommodation equal to that of an ocean ail steamer with the light draught necessary to enable them to proach the coastal ports, carry out a fortnightly service between emantle, Java, and Singapore, touching at the usual intermediate rts. At Singapore they connect with the P. & O. Co.'s steamers passengers, and with Holt's Ocean Line of steamers for cargo, ich leave there for London, etc., about twice a week. The average ration of the voyage between Fremantle and Singapore is 20 days, d from Singapore to London 30 to 35 days.

Cargo is booked by this route, not only between London and estern Australia, but also between Western Australia and all the ef ports on the European Continent, Glasgow, Liverpool, New rk, Philadelphia, Boston, etc.; also to and from India, China, pan, etc.

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Steamers leaving London, Liverpool, Glasgow, Antwerp, Hamburg, and other Continental ports (at intervals of about 15 days), and steamers from New York, Vancouver, and principal Indian, Chinese, and Japanese ports, connect regularly with the vessels of this line at Singapore. Goods are received at through rates for Western Australia at all the before-mentioned ports, and forwarded to any Western Australian port on a through bill of lading. The same system of traffic is also available for exports from Western Australia.

Passengers for London are taken from all ports north of Fremantle, and transhipped into the P. & O. steamers at Singapore.

The passage-money between London and all ports *via* Singapore is £62 saloon, and £41 saloon in steamers between Singapore and Western Australia, and second class in P. & O. steamers; return saloon, £110. Return saloon (Western Australia *via* Singapore steamer) and second saloon in P. & O., £70.

Children under 12 years	Half fare
One child „ 3 „	Free.

The rates of freights to Fremantle *via* Singapore are:—

From London—

Weight, 27s. 6d. to 32s. 6d. per ton.
Rough measurement, 46s. to 50s. per ton.
Fine measurement, 50s. to 55s. per ton.

From Liverpool and Glasgow—

Weight, 30s. to 35s. per ton.
Measurement, 45s. to 50s. per ton.

From Hamburg, Antwerp, Rotterdam, and Bremen—

Weight, 27s. 6d. to 35s. per ton.
Measurement, 50s. to 55s. per ton.

New York-Fremantle.—Through bills of lading to Fremantle by steamer from New York are given by Booth & Co., 90 Gold Street, New York, goods being transferred in Singapore to the Western Australian steamers.

From New York.—Weight or measurement, about 40s. per ton. The rates of freight to the northern ports of Western Australia from all European ports are a little in excess of the Fremantle rates.

These companies have a small steamer (the "Beagle") connecting with the larger boats at Cossack, and carrying passengers and cargo to and from Condon and the various landing-places for stations and the goldfields adjacent to Cossack.

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Rates of Passage Money and Freights.

Ports.	Passengers. 1st Class.	Passengers. Return.	Passengers. 2nd Class.	Passengers. Natives and Asiatics on Deck.	Stock. Less 10 per cent. if more than 10 head. Ten head and over a free steerage passage to man in charge. Horses.	Stock. Stud Cattle.	Stock. Less 10 per cent. for 25 Rams and over. Rams or Stud Sheep.	Cargo. General.	Cargo. Tobacco, Cigars, Wine and Spirits.	Cargo. Timber. Per load, 50 cu. ft.	Cargo. Hay and Chaff. Per ton weight.	Cargo. Parcels.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	s. d.	Per ton. s. d.	Per ton of 40 cu. ft. s. d.	s. d.	s. d.	s. d.
Fremantle to Geraldton	2 0 0	3 10 0	1 0 0	0 15 0	1 10 0	1 10 0	3 0	10 0	15 0	15 0	25 0	2 6
„ Shark Bay	4 10 0	7 10 0	2 10 0	1 10 0	4 0 0	4 0 0	5 0	15 0	22 6	27 6	25 0	3 6
„ Carnarvon Roads ...	5 10 0	9 0 0	3 5 0	2 0 0	4 0 0	4 0 0	5 0	32 6	40 0	40 0	35 0	3 6
„ Ashburton Roads ...	7 15 0	13 0 0	5 0 0	3 0 0	5 0 0	5 0 0	6 0	35 0	45 0	50 0	60 0	4 6
„ Cossack Roads ..	9 5 0	15 0 0	6 5 0	3 15 0	5 0 0	5 0 0	6 0	35 0	45 0	50 0	60 0	5 6
„ Port Hedland ...	10 10 0	17 10 0	7 0 0	4 0 0	6 0 0	6 0 0	7 0	45 0	55 0	57 6	70 0	5 6
„ Roebuck B. (Broome)	11 0 0	18 5 0	7 15 0	4 0 0	6 0 0	6 0 0	8 0	45 0	55 0	57 6	70 0	5 6
„ Derby	12 10 0	21 0 0	8 5 0	5 10 0	6 0 0	6 0 0	8 0	47 6	57 6	65 0	75 0	5 6
„ Singapore	17 10 0	31 10 0	12 0 0	7 0 0	...	...	...	40 0	...	...	...	...
„ Java / „ Sourabaya ...	14 0 0	24 10 0	8 0 0	5 0 0	...	...	...	...	...	...	...	...

Freights through to London, from Shark Bay ... ... Shell } as arranged.
„ To Trieste / Or Havre ... ... „ } as arranged.
„ London from Pearling Grounds or Cossack ... „ } as arranged.

Wool to London, Sandalwood to Singapore, Hong Kong, or Shanghai, Sheep to Singapore, as arranged. Beche-de-mer, Cossack to Hong Kong, 60s. per 20 cwt.

Freight through from London, Liverpool, Glasgow, and all Continental ports at lowest current rates. Passengers booked through to London from ports north of Fremantle, transhipping at Singapore into the P. & O. Company's mail steamers. Fares: Saloon, £68; saloon to Singapore and second cabin thence, £45; circular tickets, available for return to Albany direct, fares: £115 and £68.

* Rates subject to alteration.

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From Liverpool and Glasgow to Fremantle.

Sailing vessels are despatched at intervals, the London agents being Messrs. Bethell, Gwyn, & Co.; Glasgow agents, Messrs. T. Law & Co.; Liverpool, T. Marwood & Co.; Fremantle, Messrs. Dalgety & Co., Ltd.

THE ADELAIDE STEAMSHIP COMPANY, LIMITED.

Mail contractors for sea-carried mails for the whole of the mails to N.W. of Australia, and also to the Eastern States.

Albany and Fremantle, to and from Queensland, South Australia, Victoria, and New South Wales. Steamers leave at regular intervals, circumstances permitting.

Regular Royal Mail Steamers run monthly to the Western Australian ports, North of Fremantle (as advertised), specified below.

Frequent service as arranged to and from the Southern ports of the State.

Albany to Esperance Bay and bye ports, Regular Royal Mail steamer "Dawn" (W. H. Smith and Sons, Ltd., for which the Adelaide S.S. Co., are agents), weekly, extending to Israelite Bay and bye ports fortnightly, and to Eucla quarterly.

Regular and frequent steamers between Geraldton, the Southern ports, and the Eastern States.

s.s. "Yongala" *	...	3,664 tons	s.s. "Adelaide" ...	...	1,711 tons
„ "Grantala" *	...	3,664 „	„ "Bullarra" ...	...	1,725 „
„ "Innamincka"	...	2,500 „	„ "Ouraka" ...	...	2,637 „
„ "Wollowra"	...	2,600 „	„ "Barrier" ...	...	2,086 „
„ "Marloo" ...	...	2,600 „	„ "Ferret" ...	..	445 „
„ "Allinga" ...	...	3,000 „	„ "Karoo" ...	...	300 „
„ "Kadina" ...	...	4,000 „	„ "Moonta" ...	...	3,500 „
„ "Willyama"	...	4,000 „	„ "Mintaro" ...	...	4,500 „
„ "Colac" ...	...	1,479 „	„ "Tarcoola" ...	...	4,000 „
„ "Investigator"	...	580 „	„ "Dilkera" ...	...	4,000 „
„ "Wakefield"	...	150 „	„ "Winfield" ...	...	5,000 „
„ "Kolya" ...	...	3,000 „			

* Speed, 17 knots.

Besides a fleet of small steamers, lighters, hulks, etc. A new passenger steamer is being built.

Adelaide Steamship Co.'s (Limited) Fleet engaged as above.

Agencies.—Adelaide, P. D. Haggart, Secretary; London, G. S. Yuill and Co., Limited, Agents; Melbourne, E. Northcote, General Manager; Sydney, G. S. Yuill and Co., Limited, Agents; Brisbane, E. B. Wareham, Queensland Inspector; Fremantle, W. E. Moxon, Manager for W.A.; Albany, J. H. Downer, Agent; Kalgoorlie, W. F. Gardiner, Branch Manager; Perth, Forrest, Emanuel, & Co.; Geraldton, J. C. Butcher, Agent; Bunbury, R. Forrest, Agent.

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The Adelaide Steamship Company, Limited, supplies the following information useful to passengers by sea to the Eastern States, and to the North-West coast of Western Australia:—

This company run such steamers as the s.s. "Grantala," 3,664 tons, 17 knots; "Yongala," 3,664 tons, 17 knots; "Bullarra," 2,000 tons; and other modern vessels run in the Coastal Trade of Australia.

Passengers can travel from Wyndnam (North-West), down Western Australian coast to Fremantle, Albany, Esperance Bay, Eucla, and South Australia, Victoria, New South Wales and Queensland (far Northern Coast), a distance of 6,100 miles, or nearly round the continent of Australia.

The Company have offices and agencies at every Australian port, where passengers can obtain all information, shippers' rates, etc.

PRINCIPAL PORTS IN WESTERN AUSTRALIA TOUCHED AT*:—Wyndham (1,950), Derby (1,450), Broome (1,250), and Pearling grounds; Port Hedland (1,000) for Condon, Bamboo Creek, Marble Bar, etc.; Cossack (925), Onslow (740), Carnarvon (480), Shark Bay (410), Geraldton (210), Dongara (160), Fremantle, Bunbury (86), Busselton (114), Hamelin (200), Albany (350), Esperance Bay (540).

PRINCIPAL PORTS IN SOUTH AUSTRALIA.—Adelaide (1,350M.), Port Pirie, and all Spencer's Gulf Ports. (Weekly from Adelaide.)

VICTORIA.—Melbourne, and Geelong, with arrangements for communication with Portarlington, Port Fairy (Belfast), and Warrnambool, and other coast ports.

NEW SOUTH WALES.—Sydney, Newcastle, etc.

TASMANIA.—Agencies at principal ports.

QUEENSLAND.—Brisbane, Maryborough, Bundaberg, Gladstone, Rockhampton, Mackay (for Broadsound, Habana, and Proserpine River), Bowen, Townsville, Lucinda Pt., Cardwell, Goondi, Geraldton (Johnstone River), Mourilyan Harbour, Cairns (for Daintree and Mossman Rivers), Port Douglas, Cooktown.

DISTANCES TRAVERSED BY ADELAIDE S.S. CO.'S SERVICES.—Wyndham to Fremantle, 1,950 miles, *via* coast; Fremantle to Albany, 350 miles; Fremantle to Adelaide, 1,370 miles; Fremantle to Melbourne, 1,878 miles; Fremantle to Sydney, 2,442 miles; Fremantle to Brisbane, 2,952 miles; Fremantle to Townsville, 3,700 miles; Fremantle to Cairns, 3,860 miles; Fremantle to Cooktown, 3,960 miles; Fremantle to Port Darwin, *via* N.W. Cape, 2,238 miles (steamers at intervals); Fremantle to Derby, 1,450 miles.

* The figures in parentheses denote miles from Fremantle, Western Australia.

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Adelaide S.S. Co.'s steamers leave approximately—

Eastern ports for Western Australia, about fortnightly, passengers and cargo.

Western Australian ports for East, fortnightly, passengers and cargo.

New South Wales for Queensland, weekly.

Victoria for Queensland, about once weekly.

South Australia for Queensland, fortnightly.

Western Australia (Fremantle) for Northern ports of the State, under contract to Western Australian Government, once a month.

Western Australia (Fremantle), all ports as above, extending to Wyndham, once every 60 days.

Western Australia (Fremantle) for Geraldton, Bunbury, Busselton (Vasse), and Hamelin Harbour, at regular intervals at least twice monthly, each way.

Adelaide to Esperance Bay, every week, *via* Albany.

Albany to Esperance, weekly, extending to Israelite Bay fortnightly, and to Eucla quarterly. (Agents for subsidised service.)

Interstate Service—Weekly.

Between Fremantle and Sydney, extending to Queensland ports, calling in either way at the intermediate ports of Bunbury, Vasse, Albany, Adelaide, and Melbourne.

Regular Western Australian and Queensland traders:—

s.s.	"Grantala"	3,664 tons.
„	"Yongala"	3,664 „
„	"Innamincka"	2,500 „
„	"Wollowra"	2,600 „
„	"Adelaide"	2,000 „
„	"Marloo"	2,600 „
„	"Bullarra"	2,000 „
„	"Allinga"	3,000 „

Above are main liners, carrying cargo, and saloon and steerage passengers.

Stock and cargo steamers running, as required, to and from Eastern States and North-Western coast of Western Australia:—

s.s.	"Colac"	2,000 tons.
„	"Moonta"	3,500 „
„	"Kolya"	3,000 „
„	"Dilkera"	4,500 „
„	"Winfield"	5,000 „
„	"Tarcoola"	4,500 „
„	"Nardoo"	5,000 „
„	"Mintaro"	3,000 „
„	"Ouraka"	4,000 „

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Fremantle-Derby Service—Monthly.

Calling at Geraldton, Shark Bay, Carnarvon, Ashburton, Cossack, Pearling Grounds, Broome, and Derby.

Fremantle-Wyndham Service—Two-monthly.

Calling at Geraldton, Shark Bay, Carnarvon, Ashburton, Cossack, Port Hedland, and Pearling Grounds, Broome, Derby, and Wyndham.

This service is carried out by the s.s. "Bullarra." Cargo, mails, and passengers.

Esperance Bay service, including Royal Mail service to and from Albany:—

s.s. "Dawn"* ... ... 400 tons.

The Adelaide Steamship Company, Limited, are contractors to Western Australian Government for the carriage of mails as under:—

(1.) To and from Eastern States as required.

(2.) To and from the whole of the North-West coast of Western Australia.

(3.) To South-East Coast, Albany to Esperance Bay and Eucla, etc. (Agents for contractors.)*

The Adelaide Steamship Company, Limited, have a coal depôt and hulks at Fremantle, and also at Albany, and bunker coal is supplied at the principal Australian ports.

Approximate Passage Rates to Western Australia by the Vessels of the Adelaide Steamship Company.

	Saloon.						2nd Class.					
	Single.			Return.			Single.			Return.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
From Sydney—												
Albany	10	0	0	15	0	0	6	0	0	11	10	0
Fremantle	10	0	0	15	0	0	6	0	0	11	10	0
Geraldton	12	0	0	18	0	0	7	0	0	13	10	0
From Melbourne to—												
Albany	8	0	0	12	0	0	5	0	0	9	10	0
Fremantle	8	0	0	12	0	0	5	0	0	9	10	0
Geraldton	10	0	0	15	0	0	6	0	0	11	10	0
From Adelaide to—												
Albany	6	0	0	9	0	0	4	0	0	7	10	0
Fremantle	6	0	0	9	0	0	4	0	0	7	10	0
Geraldton	8	0	0	12	0	0	5	0	0	9	10	0

Freights and Passenger rates vary according to competition.

* Belonging to Howard Smith Co., Ltd., the Adelaide S.S. Co., Ltd., being agents.

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Rates of Passage Money and Freights (approximate).

Ports.	Passengers.												Cargo.	
	1st Class.			Return.			2nd Class.			Natives on Deck.			General.	
													Per ton 40 cubic feet.	
Fremantle to—	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	s.	d.
Bunbury ...	1	1	0	1	11	6	0	15	0		...		12	6
Vasse	1	7	6	2	0	0	0	18	0		...		15	0
Albany	2	5	0	3	7	6	1	10	0		...		12	6
Fremantle to—														
Geraldton ...	2	0	0	3	10	0	1	0	0	0	15	0	15	0
Shark Bay ...	4	10	0	7	10	0	2	10	0	1	10	0	27	6
Carnarvon ...	5	10	0	9	0	0	3	5	0	2	0	0	32	6
Ashburton ...	7	15	0	13	0	0	5	0	0	3	0	0	35	0
Cossack	9	5	0	15	0	0	6	5	0	3	15	0	35	0
Port Hedland ...	10	10	0	17	10	0	7	0	0	4	0	0	45	0
Roebuck Bay ...	11	0	0	18	5	0	7	15	0	4	0	0	45	0
Derby	12	10	0	21	0	0	8	5	0	5	10	0	47	6
Wyndham ..	16	0	0	26	0	0	10	10	0	7	0	0	57	6

Stock rates by agreement. Sheep from Cossack, Ashburton, and Carnarvon at not more than 4s. per head. Bullocks at £3 per head.

Howard Smith Company, Limited.

The Howard Smith line of steamers maintains a regular and frequent service between Queensland, Sydney, Melbourne, Adelaide, and this State, calling at Albany, Fremantle, and Geraldton without transhipment. The steamers occupied in the trade between the Eastern States and Western Australia are—

s.s.	"Bombala"	2,700 tons.
„	"Buninyong"	2,070 „
„	"Boveric"...	3,987 „
„	"Chillagoe"	1,275 „

The passenger vessels are fitted with the electric light, and have good accommodation for both saloon and steerage passengers. The collier "Boveric" is noted for her stock-carrying capabilities.

The Company is about to introduce new tonnage, with up-to-date passenger accommodation to suit all classes.

The small steamer "Dawn," subsidised by the Postal Department to run regularly between Albany, Cape Roche, Bremer Bay, Esperance, and other ports as far as Eucla, until December, 1905, also belongs to this Company.

The rates of passage money and freights are subject to fluctuation, and can be ascertained, on application, at any of the following agencies:—

Howard Smith Company, Limited, registered office for W.A., Phillimore Street, Fremantle; Eben Allen & Co., St. George's Terrace, Perth; Dalgety & Co., Limited, Kalgoorlie; McIlwraith,

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McEacharn & Co. P., Limited, Albany; Dalgety & Co., Bunbury; Clutterbuck Bros., Geraldton.

THE HUDDART PARKER & COMPANY PROPRIETARY, LIMITED.

This Company has a line of steamers running between Melbourne, Fremantle, and Geraldton, and calling *en route* at Adelaide, Albany, Hamelin Harbour, and Bunbury. Western Australian Agents—Messrs. Dalgety & Co., Limited, Fremantle, Perth, Albany, Geraldton, and Kalgoorlie.

McILWRAITH, McEACHARN & COMPANY PROPRIETARY, LIMITED.

Branch Offices in Western Australia:—Fremantle (Registered Office in W.A.), Perth, Albany.

Sub-Agencies:—Geraldton (Burns, Philp, & Co., Ltd.), Bunbury (Thos. Hayward & Son), Coolgardie (Geof. C. Whitby), Kalgoorlie (Dalgety & Co., Ltd.).

The Company owns a fleet of eight steamers trading between all ports of the Eastern States of Australia and Western Australian ports, and also trading between Australian ports, Java, Singapore, and Calcutta.

The names of the steamers at present comprising the fleet are:—

s.s. "Cooeyanna"	5,500 tons.
s.s. "Kooringa"	5,000 „
s.s. "Ashridge"	5,000 „
s.s. "Kalgoorlie"	4,500 „
s.s. "Coolgardie"	3,500 „
s.s. "New Guinea"	3,500 „
s.s. "Tagliaferro"	2,000 „
s.s. "Norkoowa"	2,000 „

The rates for passengers and freights vary according to changes in circumstances.

Between Newcastle, Sydney, Melbourne, Adelaide, Albany, Fremantle, and Geraldton, McIlwraith, McEacharn & Company Proprietary, Limited, maintain a regular fortnightly cargo and passenger service, and also book cargo on through bills of lading to all other ports in Australia.

Bunker coal is supplied by this Company from a fleet of hulks at Fremantle and Albany.

The Company delivers cargo in Perth, and receives cargo consigned on through bill of lading to the Eastern States or elsewhere, transhipped at Fremantle.

Messrs. McIlwraith, McEacharn & Company's head office is situated at 467 Collins Street, Melbourne. They have also branch offices at London, Newcastle (N.S.W.), Adelaide, and Geelong. Messrs. Burns, Philp & Co., Ltd., act as their agents at Sydney, and they are also represented by agents at all other ports throughout the Commonwealth.

Resident Manager and Attorney in W.A.—C. H. Salmon.

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Australasian United Steam Navigation Co., Ltd.

The Australasian United Steam Navigation Company, Limited, (P. Ridley, Manager for Western Australia), head office, Brisbane, Queensland, runs a fortnightly service with the "Kanowna" and "Kyarra" between Sydney and Fremantle, calling at Melbourne and Adelaide *en route*. The Company's saloon passage tickets are at present interchangeable after first port of call with those of the Adelaide Steamship Company, Ltd., McIlwraith, McEachran & Co. Proprietary, Ltd., Howard Smith & Co., Ltd., and Huddart Parker and Co. Proprietary, Ltd. (Conditions on application.) As these Companies despatch steamers at regular intervals of three or four days, this arrangement enables passengers to break their journey at any of the intermediate ports, and to continue same by any subsequent steamer belonging to the five lines referred to during the currency of the ticket (6 months), thus giving travellers privileges unequalled in any part of the world.

Australasian United Steam Navigation Company, Limited, Fleet.

Passenger Steamers.		*Cargo Steamers.*	
"Kanowna"	6,932 tons	"Moira"	2,184 tons
"Kyarra"	6,953 "	"Mildura"	2,217 "
"Pilbarra"	2,665 "	"Mareeba"	1,747 "
"Wyandra"	4,058 "	"Tinana"	791 "
"Wodonga"	2,341 "		
"Aramac"	2,114 "	*Tenders.*	
"Arawatta"	2,114 "	"Tay"	360 "
"Cintra"	1,979 "	"Taldora"	232 "
"Rockton"	1,971 "	"Dolphin"	131 "
"Warrego"	1,552 "	"Hornet"	55 "
"Maranoa"	1,505 "	"Wasp"	20 "
"Eurimbla"	1,055 "		
"Kuranda"	928 "	*Hulks.*	
"Yaralla"	482 "	"Gunga"	1,257 "
"Palmer"	267 "	"Manly"	100 "

The Australasian United Steam Navigation Company conducts the following mail and passenger lines, which connect with the West Australian Service.

Melbourne to Cooktown (Queensland) Weekly Mail Service.—Steamers leave Melbourne for Cooktown every Saturday, *via* Sydney, Brisbane, Rockhampton, Mackay, Bowen, Townsville, Cairns, and Port Douglas.

Brisbane-Townsville Line—Weekly Service.—The s.s. "Barcoo" runs a fast mail service between Brisbane and Townsville every Friday, at 9 a.m., calling *en route* at Gladstone, Mackay, and Bowen. This service is conducted in conjunction with the Queensland Railway Department, and steamer and rail tickets are now interchangeable.

Townsville-Cairns Line—Weekly Mail Service.—Steamers leave Townsville every Monday, calling *en route* at Lucinda, Port Cardwell, Mourilyan Harbour, and Geraldton (Q.)

Brisbane to Thursday Island, Normanton, Burketown, via Townsville and Cooktown—Tri-weekly Mail Service.—The s.s. "Maranoa" leaves Brisbane every third Tuesday, at 5 p.m.

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Sydney-Fiji and New Caledonia—Monthly Service.—The s.s. "Pilbarra" leaves Sydney every four weeks.

The Australasian United Steam Navigation Company have the credit and honour of being the first interstate company (and so far the only one) to place large passenger steamers of nearly 7,000 tons *gross* register on the coast of Western Australia.

The company has its offices at Perth (Town Hall Buildings, Barrack Street) and at Fremantle (Phillimore Street), and is represented at Kalgoorlie by T. Stodart & Co.; Coolgardie, by G. C. Whitby; Geraldton, by Burns, Philp, & Co., Ltd.; Albany, by McIlwraith, McEacharn & Co. Proprietary; and at Bunbury by T. Hayward & Son.

Rates of passage money and freight may be obtained from the above-mentioned.

The Australasian United Steam Navigation Company are agents for the following lines of steamers:—

(1.) Canadian-Australian Royal Mail Line of steamers, which ply between Sydney and Vancouver, calling *en route* at Brisbane, Fiji, and Honolulu (Sandwich Islands), and connect with the Canadian Pacific Railway.

(2.) The New Zealand Shipping Company, Ltd., Royal Mail Line of steamers, New Zealand to London, *via* Monte Video, Teneriffe, and Plymouth.

(3.) The British-India Steam Navigation Company, Ltd.—Calcutta to Australia, *via* Singapore.

Direct Line of Sailing Vessels from the Continent to Fremantle.

The above line started six years ago, sending only one vessel the first year. The application for space has increased to such an extent that now a vessel is despatched every six or eight weeks from Hamburg.

The ships are despatched from Hamburg, but goods are booked at through rate from all parts of the Continent to all parts of this State. Average duration of voyage, 90 days.

The freights vary according to the freight market, but are usually 2s. 6d. per ton below the London rate.

Provision is made on all sailers of this line to carry explosives.

The vessels are consigned to Messrs. Strelitz Bros., Fremantle, who are the West Australian agents and correspondents.

Hamburg Agent, Paul Adler.

German-Australian Steamship Company, Limited.

The steamers of the above Company call at Fremantle every four weeks. After leaving Hamburg they call at Antwerp, Cape Town, and Port Elizabeth, and then proceed direct to Fremantle.

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Owing to this Company having large contracts for carrying explosives they do not cater for the passenger traffic.

Cargo is booked from Hamburg and all other Continental ports to Fremantle, Perth, Bunbury, Albany, Geraldton, and Esperance on through bills of lading.

The homeward journey from Fremantle is made *via* Singapore, Colombo, and Suez Canal. Goods are booked to above places and all European ports.

The following is the list of steamers owned by the above Company:—

		tons			tons
"Altona"	abt.	4,500	"Itzehoe"	abt.	5,217
"Apolda"	"	4,950	"Kiel"	"	5,143
"Augsburg"	"	4,907	"Laeisz"	"	5,157
"Bergedorf"	"	5,108	"Madgeburg" ...	"	5,154
"Bielfeld"	"	5,186	"Meissen"	"	5,209
"Chemnitz"	"	2,758	"Offenbach"	"	5,442
"Duisburg"	"	5,155	"Rostock"	"	4,972
"Elbing"	"	5,677	"Sommerfeld" ...	"	2,606
"Essen"	"	2,939	"Sonneberg"	"	4,499
"Flensburg"	"	4,435	"Stassfurt"	"	3,231
"Harburg"	"	5,217	"Varzin"	"	5,192

New Steamers.

"Berlin"	abt.	5,200	tons
"Ottensen"	"	5,200	"

New Steamers Building.

"Solingen"	abt.	5,200	tons
"Oberhausen"	"	5,200	"
"Linden"	"	5,200	"

The sole agents in Western Australia are Messrs. Strelitz Bros., Mouatt Street, Fremantle, from whom full information about rates of freight can be obtained.

Melbourne Steamship Company, Limited.

This Company has established a fortnightly steam service between Newcastle, Sydney, Melbourne, Adelaide, Albany, Bunbury, Fremantle, and Geraldton, without transhipment. The steamers engaged in this trade comprise the "Hobart" (4,000 tons), "Sydney" (3,000 tons), and "Perth" (2,500 tons), all of which have been only recently built.

All the vessels are classed 100 A1 at Lloyd's, have first-class passenger accommodation, and are fitted with electric light throughout.

As the vessels of this line run through from Newcastle to Geraldton *via* ports passengers are not put to the inconvenience of transhipping.

The Company's Office is in Cliff Street, Fremantle, where all particulars regarding steamers' movements, rates of freight, and passage-money can be obtained.

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The Company is represented at Albany by Dalgety & Co., Ltd.; at Bunbury, by Robert Forrest; at Geraldton, by Burns, Philp, & Co., Ltd.; in Perth by H. G. Barker & Co., St. George's Terrace; and in Kalgoorlie by Maughan & Gurner.

Head Office for Western Australia:—Cliff Street, Fremantle.

Lund's Blue Anchor Line.

Lund's steamers call at Albany, on the homeward voyage, every four weeks; and proceed to London *via* Port Natal and Capetown.

Fares, Albany to London, from £16 to £52; Albany to Natal and Capetown, from £13 13s. to £31 10s.

Cargo is carried to London and Cape ports at rates current in Eastern States.

Vessels engaged in the trade are:—

Geelong"*	7,954 tons	"Wakool"	5,013 tons
Commonwealth"* ...	6,611 „	"Wilcannia"	5,000 „
Narrung"	5,078 „	"Warrigal"	4,387 „

* Twin Screw.

The line is represented in Western Australia by George Wills & Co., Fremantle, and Henry Wills & Co., Albany.

British-India Steam Navigation Company, Limited.

The British-India Steam Navigation Company, Limited (P. Ridley, Fremantle, Agent), is the largest steamship Company flying the British flag. Steamers of over 5,000 tons trade regularly between Calcutta and other Indian ports, *via* Singapore to Australia and New Zealand, making Fremantle the first port of call in Australia.

The following is the fleet of steamers visiting Australia:—

Fazilka"*	4,152 tons	"Satara"	5,150 tons
Islanda"	5,237 „	"Sealda"*	5,030 „
Ismalia"	5,265 „	"Sofala"*	5,030 „
Itola"	5,203 „	"Surada"*	5,238 „
Jumna"*	4,844 „	"Ujina"	5,310 „
Muttra"*	4,644 „	"Uganda"*	5,366 „
Onda"	5,247 „	"Ula"*	5,310 „
Obra"*	5,456 „	"Umballa"	5,310 „
Orissa"	5,436 „	"Umta"	5,366 „
Sangola"*	5,149 „	"Upada"	5,257 „

* Fremantle and Bunbury.

For information as to rates of passage-money and freight application may be made to P. Ridley, Australasian United Steam Navigation Company, Limited, Fremantle.

James Bell & Company.

James Bell & Co., Cliff-street, Fremantle (branches: Adelaide, Sydney, Newcastle, and Durban). Head Office: Melbourne.

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Bi-weekly service to Geraldton per s.s. "Julia Percy," 580 tons. Fares:—Saloon, single, £1 10s.; return, £2 10s. Steerage, single, £1; return, £1 10s. Rate of freight, 10s. per ton.

Direct Sailing Vessel Line—London to Fremantle.

Messrs. Trinder, Anderson, & Co.; Bethell, Gwyn, & Co., and W. Marden (W.A. Shipping Association), Anderson, Anderson, & Co., and Birt, Potter, and Hughes despatch vessels to Fremantle at intervals of about four weeks. Rate of freight—from 22s. 6d. to 35s. per ton. Average duration of voyage—ninety days. Agents in Western Australia—Messrs. Dalgety & Co., Limited; Elder, Shenton & Co., Ltd., and the W.A. Shipping Association, Fremantle.

Rates of Freight.

Weight	22s. 6d. to 27s. 6d. per ton of 20cwt.
Salt	22s. 6d. do. do.
Measurement	32s. 6d. to 35s. per ton of 40 cubic feet.
Cement	3s. 6d. per barrel.
Bulk Beer	55s. per ton of 4 hogsheads.
Bulk Wines and Spirits ...	65s. do. do.

2.—EMIGRATION TO WESTERN AUSTRALIA.

Assisted Passages, as at present granted by the Government of Western Australia, are subject to the following conditions and regulations:—

The classes eligible are: Married and single farm labourers under 40 years of age, also single women or widows (without children), such as cooks, housemaids, nurses, general servants, dairymaids, etc., not over 40 years of age, who are nominated by their friends in Western Australia, provided such nominations have been approved by the Government in the State. In all cases they must be sober, industrious, of good moral character, of sound mind, free from bodily defect or deformity, in good health, able to perform the duties of their special occupation, and must be going to the State to reside and settle there, and to work in their respective occupations. All emigrants receiving assisted passages must either have been vaccinated or have had the smallpox. For each emigrant over 12 years of age the Government contributes £7 10s. towards the passage money, the emigrant or his nominator paying the difference, which latter sum varies from £7 10s. to £13 10s., according to the accommodation required; children from three to twelve being charged half-fare.

Persons who have resided in Western Australia are not in any case eligible for assisted passages, nor persons in the habitual

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receipt of parish relief, children under twelve years of age without their parents, husbands without their wives, or wives without their husbands (unless in the last three instances the parents, wife, or husband be in Western Australia), nor single women who have illegitimate children.

No person is granted an assisted passage unless his application has been first approved by the Agent General. No single or married men above the age of 40 years are allowed any assistance, except under very exceptional circumstances.

During the past few years there has been a fair demand for men in the building trades, and farm labourers.

Remunerative labour exists for market gardeners, poultry farmers, and fruit-growers; the soil and climate being especially suitable for fruit-growing. Farm labourers are, as a rule, boarded and lodged; single men being preferred to married men with families. Men mostly find employment who are ready to turn their hands to all kinds of farm and station work, to cut down timber, or use a pick and shovel, and do not object to "roughing it" in the bush. Navvies, carpenters, joiners, bricklayers and masons, sawyers, smiths, wheelwrights, tanners, gardeners, and others are at times in demand.

There is, on the whole, a fair demand for mechanics, but none for miners, and but little for general labourers; agricultural labourers and female domestic servants have, however, no difficulty in finding employment.

It should be remembered that the population of the State, though it has rapidly increased, is still small, and that, therefore, the demand for all kinds of labour is necessarily limited. It is very difficult for clerks, accountants, bookkeepers, and others whose work is of a clerical nature, to find employment anywhere. On the other hand, there is a good demand for cooks, general female servants, and laundresses, and to a slight extent for dressmakers. There is also a good opening for market gardeners, fruitgrowers, and farmers, who have some little capital, say about £150, as fruits and vegetables sell at high prices.

The cost of living is high in certain respects, but house rent at any rate is, naturally, now more reasonable than it was at the time of the opening up of the Eastern goldfields. Board and lodging for single persons cost from fifteen shillings to twenty-five shillings a week in the South, and more in the Northern towns.

The eight hours' working day is recognised in the majority of the trades.

Intending immigrants can obtain the latest and fullest particulars as to employment, wages, cost of living, etc., either by personal or written application at or to the office of the Agent-General for Western Australia, which is situated at 15 Victoria Street, London, S.W.

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Number of Free and Nominated Immigrants introduced into Western Australia during the Year 1904.

Month	Vessel.	Adults.			Children under 12.			Grand Total.		
		M.	F.	Total.	M.	F.	Total.	M.	F.	Total.
Feb.	Ortona	3	2	5	...	2	2	3	4	7
Feb.	Gneisenau	...	1	1	...	...	...	...	1	1
Feb.	Oroya	1	...	1	...	...	...	1	...	1
Mar.	Orizaba	2	1	3	...	...	...	2	1	3
Mar.	Ophir	2	1	3	...	...	...	2	1	3
April	Omrah	3	7	10	...	1	1	3	8	11
April	Weimar	1	2	3	3	2	5	4	4	8
May	Oroya	4	2	6	...	...	...	4	2	6
May	Oratava	6	5	11	3	2	5	9	7	16
May	Persic	2	...	2	...	...	...	2	...	2
May	Gera	3	1	4	...	...	...	3	1	4
June	Karlsruhe	1	...	1	...	...	...	1	...	1
June	Ortona	2	1	3	2	2	4	4	3	7
June	Runic	2	...	2	...	...	...	2	...	2
June	Geo. Flemming	1	1	2	...	...	...	1	1	2
July	Orizaba	9	3	12	3	...	3	12	3	15
July	Darmstadt	3	3	6	2	2	4	5	5	10
July	Medic	1	2	3	...	1	1	1	3	4
July	Orontes	2	1	3	3	...	3	5	1	6
Aug.	Stuttgart	9	6	15	...	2	2	9	8	17
Aug.	Omrah	1	...	1	...	...	...	1	...	1
Aug.	Orient	1	2	3	...	...	...	1	2	3
Aug.	Afric	1	...	1	...	...	...	1	...	1
Sept.	Scharnhorst	1	4	5	4	2	6	5	6	11
Sept.	Oroya	2	...	2	2	...	2	4	...	4
Sept.	Weimar	2	...	2	...	...	...	2	...	2
Oct.	Barbarossa	3	2	5	1	3	4	4	5	9
Oct.	Ortona	...	2	2	...	1	1	...	3	3
Oct.	Persic	1	1	2	2	1	3	3	2	5
Oct.	Orizaba	1	2	3	...	1	1	1	3	4
Oct.	Runic	...	1	1	...	...	...	...	1	1
Nov.	Grosser Kurfürst ...	3	6	9	...	...	...	3	6	9
Nov.	Orontes	...	1	1	...	...	...	...	1	1
Nov.	Omrah	1	...	1	...	...	...	1	...	1
Dec.	Gneisenau	4	6	10	1	1	2	5	7	12
Dec.	Ophir	1	2	3	...	2	2	1	4	5
Dec.	Oratava	3	3	6	...	1	1	3	4	7
Dec.	Rhein	1	...	1	...	...	...	1	...	1
	Totals	83	71	154	26	26	52	109	97	206

Number of Free and Nominated Immigrants introduced into Western Australia during each of the Ten Years 1895 to 1904.

Year.	Adults (12 years and upwards).			Children under 12 years of Age.			Grand Total.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
1895 ...	23	110	133	5	6	11	28	116	144
1896 ...	9	117	126	3	7	10	12	124	136
1897 ...	25	129	154	15	11	26	40	140	180
1898 ...	29	63	92	...	5	5	29	68	97
1899 ...	17	24	41	4	4	8	21	28	49
1900 ...	25	70	95	12	17	29	37	87	124
1901 ...	26	41	67	30	28	58	56	69	125
1902 ...	47	65	112	28	20	48	75	85	160
1903 ...	56	79	135	32	29	61	88	108	196
1904 ...	83	71	154	26	26	52	109	97	206

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3.—LIST OF CONSULS OF FOREIGN COUNTRIES RESIDING IN WESTERN AUSTRALIA.

Country represented.	Name of Consul, Vice Consul, or Consular Agent.	Office at—
Belgium	Shenton, E. C., Consul ...	Perth
Denmark	Strelitz, Richard, Consul ...	Fremantle
France	Gawler, D. G., Consular Agent	Perth and Fremantle
Germany	Ratazzi, L., Consul	Fremantle
Greece	Downing, H. P., Vice Consul ...	Perth
Italy	Zunini, Leopoldo, Vice Consul	Do.
Do.	Morgans, A. E., Acting Vice Consul	Do.
Do.	Ratazzi, L., Consular Agent ...	Fremantle
Netherlands, The ...	Strelitz, Paul, Consul	Do.
Do.	Strelitz, Richard, Acting Consul	Do.
Paraguay	Pearson, John Swift, Consul ...	Perth
Sweden and Norway	Strelitz, Richard, Vice Consul	Perth and Fremantle
Do.	Haynes, S. J., Vice Consul ...	Albany
U.S. of America ...	Perrot, F. R., Consular Agent	Fremantle
Do.	Dymes, F. R., Consular Agent	Albany

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PART XIV.—STATISTICAL APPENDIX.

1.—STATISTICAL VIEW OF THE PROGRESS OF WESTERN AUSTRALIA, 1829 TO 1904.

No. 1.—*Population and Vital Statistics.*

Year.	Population.			Migration.		Vital Statistics.		
	Males.	Females.	Total.	*a* Arrivals.	*a* Departures.	Births.	Deaths.	Marriages.
	No.	No.	No.	No.	No.	No.	No.	No.
1829 *a* ...	769	234	1,003	652	...	*b*	*b*	*b*
1830 *a* ...	*b*	*b*	*b*	1,125	...	*b*	*b*	*b*
1835 *a* ...	*b*	*b*	*b*	96	68	*b*	*b*	*b*
1840 *a* ...	1,434	877	2,311	123	...	54	20	25
1845 *a* ...	2,689	1,790	4,479	...	129	184	55	38
1850 *a* ...	3,576	2,310	5,886	203	...	186	54	37
1855 *a* ...	8,311	4,294	12,605	587	...	381	58	127
1856 *a* ...	8,751	4,407	13,158	294	...	355	96	99
1857 *a* ...	8,833	4,535	13,368	...	92	466	164	113
1858 *a* ...	9,735	4,808	14,543	848	...	491	164	144
1859 *a* ...	9,522	5,315	14,837	...	261	531	209	151
1860	9,529	5,698	15,227	461	450	588	209	151
1861	9,852	5,839	15,691	560	424	585	257	149
1862	10,062	6,284	17,946	1,808	658	628	228	162
1863	12,005	6,775	18,780	1,920	737	597	246	154
1864	12,461	7,010	19,471	1,173	916	763	339	155
1865	13,005	7,255	20,260	1,268	836	690	333	145
1866	13,584	7,481	21,065	1,069	647	710	337	149
1867	13,934	7,779	21,713	721	467	754	360	168
1868	14,539	8,194	22,733	1,038	404	740	354	177
1869	14,415	8,500	22,915	503	752	751	334	173
1870	15,474	9,610	25,084	268	308	615	281	153
1871	15,565	9,788	25,353	330	479	760	332	159
1872	15,680	10,044	25,724	330	419	828	358	142
1873	15,569	10,192	25,761	285	639	809	418	161
1874	15,722	10,487	26,209	660	601	876	487	181
1875	15,910	10,799	26,709	733	520	760	473	192
1876	16,166	11,155	27,321	727	650	918	383	191
1877	16,326	11,512	27,838	613	575	912	433	176
1878	16,409	11,757	28,166	322	471	871	394	182
1879	16,628	12,040	28,668	214	278	977	411	215
1880	16,559	12,460	29,019	577	777	983	382	214
1881	17,216	12,797	30,013	611	690	1,001	402	197
1882	17,551	13,215	30,766	932	838	1,089	430	215
1883	18,005	13,695	31,700	1,507	1,071	1,058	560	217
1884	18,623	14,335	32,958	2,434	1,563	1,094	707	230
1885	19,989	15,197	35,186	3,047	1,419	1,200	600	236
1886	23,044	16,540	39,584	5,615	1,877	1,466	806	297
1887	24,807	17,681	42,488	4,450	2,400	1,557	702	316
1888	24,375	17,862	42,137	1,598	2,794	1,518	673	304
1889	25,066	18,632	43,698	2,850	2,272	1,594	611	300
1890	26,794	19,496	46,290	3,567	1,996	1,561	540	278
1891	32,054	21,225	53,279	6,346	2,667	1,786	869	413
1892	35,632	23,026	58,658	7,440	2,978	1,848	931	412
1893	40,182	24,855	65,037	8,928	3,716	2,112	945	392
1894	53,121	28,893	82,014	25,858	9,923	2,123	1,081	482
1895	66,579	34,564	101,143	29,523	11,163	2,373	1,604	633
1896	91,586	46,210	137,796	55,215	19,324	2,782	2,020	1,077
1897	103,880	57,814	161,694	49,387	26,867	4,021	2,643	1,630
1898	105,440	62,370	167,810	32,709	28,845	4,988	2,716	1,674
1899	105,708	64,943	170,651	20,278	20,287	5,174	2,294	1,671
1900	109,923	69,785	179,708	24,921	19,078	5,454	2,240	1,781
1901	118,241	75,868	194,109	32,762	*c* 21,560	5,718	2,519	1,921
1902	129,386	83,941	213,327	37,860	*c* 22,051	6,232	2,823	2,084
1903	135,961	90,993	226,954	30,948	*c* 21,237	6,699	2,788	2,064
1904	144,256	98,033	242,289	31,517	*c* 20,541	7,176	2,817	2,088

a From the first settlement of the colony up to the year 1837 there were no Blue Books issued, and the figures relating to arrivals and departures, shipping, imports and exports were taken either from the reports of the Harbour Master at Fremantle or from the Perth newspapers of that period. From 1837 to 1850, inclusive, the Blue Books give only the excess of arrivals over departures, or vice versa. *b* No records obtainable. *c* Including allowance for unrecorded departures.

No. 2.—*Public Revenue and Expenditure.*

Year.	Consolidated Revenue.		Expenditure from Consolidated Revenue.	Expenditure from Loan Funds on—			
	From Customs and Excise Duties.	Total, including Customs and Excise Duties.		Railways and Tramways.	Harbours, Rivers, Lighthouses, etc.	Water Supply and Sewerage.	Total Expenditure from Loans.
	£	£	£	£	£	£	£
9 ...	...	3,140	3,140	...	...	...	...
0 ..	...	17,485	17,485	...	...	...	...
5 ...	2,437	22,352	20,933	...	...	...	...
0 .	4,251	16,827	15,098	...	...	...	...
5	5,427	14,795	14,830	...	...	...	...
0 ..	7,802	19,138	16,657	...	...	...	...
5 ...	20,490	48,639	49,240	...	...	...	...
6 ...	26,606	51,170	46,990	...	...	...	...
7 ..	16,986	40,923	45,003	...	...	...	...
8 ..	26,961	52,804	47,119	...	...	...	...
9 ..	28,853	57,943	54,919	...	...	...	...
) ..	33,019	69,863	61,745	...	...	...	...
1 ..	31,829	67,261	81,087	...	...	...	...
2	32,488	69,407	72,268	...	...	...	...
3 ..	31,857	71,709	71,073	...	...	...	...
4 ...	34,184	71,911	70,715	...	...	...	...
5 ..	38,771	77,943	74,985	...	...	...	...
6 ...	44,642	89,382	84,652	...	...	...	...
7 ...	41,640	90,431	89,502	...	...	...	...
8 ..	46,491	99,496	89,728	...	...	...	...
9 ...	49,382	103,661	103,124	...	...	...	...
0 ..	42,721	98,132	113,046	...	...	...	...
..	45,877	97,606	107,148	...	...	...	...
..	55,528	105,301	98,248	...			
.	69,329	134,832	114,270	...			
..	82,275	148,073	143,266	...			
	80,645	157,775	169,230	...			
	85,178	162,189	179,484	...			
.	81,286	165,413	182,959		19,016	...	400,856
..	75,850	163,344	198,243				
	88,330	196,315	195,812				
.	95,511	180,049	204,337	274,320			
	107,993	254,313	197,386				
.	118,848	250,372	205,451	29,946	550	...	38,933
..	121,269	284,364	240,566	40,933	879	...	54,919
	118,443	290,319	291,307	138,645	2,460	...	163,452
	134,842	323,213	308,849	118,862	4,318	...	159,535
	164,048	388,564	394,675	107,630	10,029	1,540	129,048
	170,972	377,904	456,898	117,511	35,185	4,473	205,254
	159,059	357,004	385,130	6,953	8,383	1,406	43,808
	171,990	442,725	386,001	4,246	15,092	587	128,032
	182 546	414,314	401,737	1,497	3,011	759	15,906
	237,686	497,670	435,623	43,639	6,258	972	77,994
	276,544	543,898	550,616	258,017	55,847	136	369,230
	a265,182	a585,822	a629,372	b207,069	b41,206	b61	b270,641
	331,298	681,246	656,357	505,427	70,474	17	659,190
	513,508	1,125,941	936,729	362,592	138,581	49	606,502
	780,901	1,858,695	1,823,863	409,121	194,937		650,708
	1,087,257	2,842,751	2,839,453	1,926,795	218,172	16,994	2,609,668
..	1,017,724	2,754,747	3,256,912	1,395,794	208,392	75,757	1,896,145
	867,520	2,478,811	2,539,358	546,128	207,141	147,209	1,032,680
	933,717	2,875,396	2,615,675	151,111	197,488	474,615	878,329
	992,216	3,080,580	3,164,147	332,729	214,830	872,800	1,495,292
	1,335,614	3,690,585	3,491,016	578,985	182,962	731,989	1,545,823
	1,396,002	3,996,469	3,886,802	1,059,418	138,422	413,435	1,665,901
	1,262,009	3,978,468	4,127,941	443,339	84,145	130,442	710,629

a Year ended 30th June. b Half-year ended 30th June.

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No. 3.—*Public Debt, Railways, and Mines Department.**

Year.	Public Debt.		Government Railways.			Private Railways.	Mines Department† (Treasury Figures.)	
	Gross Amount outstanding.	Amount of Sinking Fund.	Miles open.	Gross Receipts.	Expenditure from Revenue.	Miles open.	Receipts.	Expenditure from Revenue.
	£	£		£	£		£	£
1854	924	...	...	...	...	...	...	...
1855	924	...	...	...	...	...	...	...
1856	924	...	...	...	...	...	...	...
1857	d	...	...	...	...	...	...	...
1858	1,750	...	...	...	...	...	...	...
1859	1,750	...	...	...	...	...	...	...
1860	1,750	...	...	...	...	...	...	...
1861	1,750	...	...	...	...	...	...	...
1862	1,750	...	...	...	...	...	...	...
1863	1,750	...	...	...	...	...	...	...
1864	1,750	...	...	...	...	...	...	...
1865	1,750	...	...	...	...	...	...	...
1866	d	...	...	...	...	...	...	...
1867	d	...	...	...	...	...	...	...
1868	d	...	...	...	...	...	...	...
1869	d	...	...	...	...	...	...	...
1870	d	...	...	...	...	...	...	...
1871	d	...	...	...	...	...	...	...
1872	d	...	...	...	...	...	...	...
1873	35,000	...	...	...	...	...	...	...
1874	65,000	...	...	...	...	...	...	...
1875	95,000	...	...	...	...	...	...	...
1876	135,000	...	...	...	...	...	...	...
1877	161,000	...	...	...	...	...	...	...
1878	161,000	...	...	...	...	...	...	...
1879	361,000	...	35	1,608	2,335	...	...	...
1880	361,000	...	35	2,626	3,851	...	...	...
1881	511,000	e	35	9,692	10,173	...	...	...
1882	511,000	32,441	55	12,732	13,180	...	...	...
1883	765,000	35,715	55	14,249	13,686	...	...	...
1884	765,000	40,943	55	20,810	18,115	...	...	...
1885	1,288,100	45,574	124	27,354	27,989	...	...	...
1886	1,286,000	50,809	151	37,652	35,440	...	...	...
1887	1,280,700	57,686	168	40,686	47,713	51	847	776
1888	1,275,200	63,729	188	38,382	46,196	51	3,895	3,076
1889	1,371,981	71,537	188	40,494	54,548	293	7,826	3,151
1890	1,367,445	85,107	188	45,113	51,640	365	4,039	3,522
1891	1,613,594	99,325	203	64,034	63,536	451	3,814	4,689
1892	2,261,864	114,294	203	94,201	90,654	453	6,085	5,189
1893 a ...	2,280,013	114,294	252	b 54,668	b 47,069	c 507	6,998	5,614
1894 a ...	3,417,339	138,531	321	140,564	103,972	c 572	21,520	7,439
1895 a ...	3,992,681	154,785	573	296,000	182,045	c 572	51,050	17,156
1896 a ...	4,736,573	175,033	588	529,616	263,704	c 572	135,168	31,842
1897 a ...	7,310,815	205,637	970	915,483	577,655	c 391	212,407	112,464
1898 a ...	9,118,224	255,784	993	1,019,677	786,318	c 495	87,401	97,734
1899 a ...	10,372,825	310,373	1,355	1,004,620	712,329	c 526	73,522	68,157
1900 a ...	11,674,640	377,161	1,355	1,259,512	861,470	c 623	106,589	91,015
1901 a ...	12,709,430	431,478	1,355	1,353,704	1,044,920	c 629	94,632	92,814
1902 a ...	14,942,310	486,737	1,360	1,521,429	1,256,370	c 629	113,644	105,580
1903 a ...	15,627,298	655,069	1,516	1,553,485	1,247,873	c 627	116,590	124,752
1904 a ...	16,090,288	864,752	1,541	1,588,084	1,179,624	c 655	121,262	195,106

* None of these were in existence in the earlier years, which have therefore been omitted. † Including Geological Survey Department. a Year ended 30th June. b Half-year ended 30th June. c Year ended 31st December. d No Public Debt. e The exact amounts of the Sinking Fund on 31st December in years previous to 1882 are not readily available.

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No. 4.—*Agriculture and Live Stock.*

Agriculture.			Live Stock.			
Wheat.	Hay.	Total Area under Crop.	Horses.	Cattle.	Sheep.	Pigs.
Acres.	Acres.	Acres.	No.	No.	No.	No.
a	a	a	57	204	1,469	106
a	a	a	101	583	7,981	66
1,156	a	1,579	167	646	5,138	550
1,670	719	2,921	506	2,318	30,961	1,533
3,313	551	4,836	1,430	6,508	95,681	1,545
4,416	1,567	7,419	2,635	13,074	128,111	3,190
8,409	2,284	13,689	4,887	21,083	184,114	5,309
9,712	3,465	18,064	5,408	23,207	177,717	6,247
10,897	3,559	17,973	7,214	28,297	198,386	8,651
11,717	4,284	20,904	7,153	27,806	217,280	9,338
13,610	5,438	25,800	8,386	30,990	234,815	11,430
13,584	6,626	24,705	9,555	32,476	260,136	10,991
14,189	7,190	27,018	10,720	33,795	279,576	11,984
13,769	8,337	28,059	12,099	36,887	295,666	11,366
18,067	7,703	33,406	12,609	39,336	348,358	11,953
19,550	7,989	35,884	15,449	44,569	383,878	15,585
22,249	8,834	38,180	15,700	45,148	445,044	15,680
25,187	10,329	43,159	16,561	41,323	481,040	12,467
25,821	11,075	45,509	17,297	45,962	537,597	14,823
30,323	10,999	50,014	18,924	46,211	599,756	18,891
25,830	14,281	49,089	22,093	45,867	648,683	17,203
26,640	17,173	54,527	22,174	45,213	608,892	12,927
32,275	15,044	58,324	22,698	49,593	670,999	14,265
31,619	13,690	53,240	25,263	44,550	688,290	19,749
25,697	15,941	51,724	26,290	47,640	748,536	20,948
23,427	13,366	45,292	26,636	46,748	777,861	13,290
21,561	17,319	47,571	29,379	50,416	881,861	14,420
18,769	16,856	45,983	33,502	54,058	899,494	18,108
22,834	18,013	50,591	30,691	52,057	797,156	18,942
23,008	18,750	51,674	32,701	56,158	869,325	16,762
25,762	19,085	56,432	32,411	60,617	1,109,860	20,397
27,686	19,563	63,902	34,568	63,719	1,231,717	24,232
21,951	24,445	53,353	31,755	63,009	1,267,912	22,530
22,718	26,959	56,691	31,325	65,473	1,259,797	16,898
28,768	20,295	58,111	32,884	64,558	1,315,155	18,512
29,416	24,053	74,930	37,111	71,102	1,547,061	20,039
29,511	19,677	60,058	34,392	70,408	1,702,719	24,280
24,043	25,718	84,403	38,360	88,254	1,809,071	24,655
27,512	25,807	66,163	41,100	93,544	1,909,940	23,627
30,740	23,914	65,701	41,390	95,822	2,112,392	25,083
35,507	25,704	73,408	42,806	119,571	2,366,681	27,079
33,820	23,183	69,678	44,384	130,970	2,524,913	28,985
26,866	28,534	64,210	40,812	133,690	1,962,213	25,930
35,061	35,124	79,605	44,973	162,886	1,685,500	24,417
42,673	29,590	83,714	45,747	173,747	2,220,642	26,233
21,433	49,896	81,328	50,001	187,214	2,132,311	28,396
23,241	63,804	97,821	58,506	200,091	2,295,833	27,015
31,488	69,436	111,738	57,527	199,793	2,248,973	31,154
38,705	80,938	133,183	62,222	244,971	2,210,742	31,809
75,032	79,223	171,777	63,604	269,947	2,251,543	39,433
84,462	78,893	186,367	65,920	297,075	2,282,303	55,953
74,308	104,254	201,338	68,253	338,590	2,434,311	61,740
94,709	92,654	217,441	73,710	398,547	2,625,855	61,052
92,398	105,791	229,992	80,158	437,136	2,704,880	52,883
137,946	109,002	283,752	82,747	497,617	2,600,633	50,209
182,080	105,247	327,391	90,225	461,490	2,853,424	70,299

icultural returns for these years are not available, although it is well known that as carried on from the first settlement of the colony.

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No. 5.—*Lands, Post and Telegraph, and Savings Bank.*

Year.	Lands.			b Post and Telegraph.			d Post Office Savings Bank.	
	Land alienated during the year.	a Lands in process of alienation, or held on Leases and Licenses on 31st December.	Land Revenue (Treasury Figures).	Telegraph Lines.	Post, Telegraph, and Telephone. Receipts.	Post, Telegraph, and Telephone. Expenditure.	Accounts open at end of period.	Amounts due to Depositors at end of period.
	Acres.	Acres.	£	Miles.	£	£	No.	£
1829 ...	525,000	...	...	...	..	...	...	
1830 ...	633,345	...	...	...	...	...	..	
1835 ...	c 234,723	...	458	...	...	54	..	
1840 ...	56,068	...	2,639	...	69	377	..	
1845 ...	5,334	...	224	...	346	756	...	
1850 ...	2,504	...	2,076	...	349	536	...	..
1855 ...	1,715	...	7,258	...	1,151	2,046	...	
1856 ...	2,456	4,131,368	7,224	...	2,103	2,210	...	
1857 ...	2,713	4,512,437	6,400	...	1,842	2,335	...	
1858 ...	3,368	4,965,046	9,360	..	2,147	2,225	...	
1859 ...	2,231	5,242,486	10,001	...	2,546	2,494	...	
1860 ...	18,193	5,563,023	17,343	...	2,790	3,627	...	
1861 ...	13,153	6,657,105	16,509	...	2,789	4,453	...	..
1862 ...	11,951	7,079,386	14,815	...	3,077	4,873	...	
1863 ...	5,372	8,439,827	14,085	...	3,496	3,944	234	2,[illegible]
1864 ...	6,406	9,191,308	15,295	...	3,783	4,274	633	6,391
1865 ...	7,565	12,343,331	15,662	...	3,850	4,189	965	9,[illegible]
1866 ...	8,283	15,518,907	19,476	...	3,962	4,659	e	12,153
1867 ...	13,937	17,698,403	22,273	...	3,921	5,181	e	12,367
1868 ...	15,926	16,754,898	24,919	...	4,423	5,866	851	13,5[illegible]
1869 ...	14,835	15,160,310	23,346	...	4,638	6,481	1,112	14,307
1870 ...	10,940	12,239,111	20,103	...	4,526	7,105	895	13,5[illegible]
1871 ...	4,536	11,317,632	17,740	21	4,014	8,474	976	14,216
1872 ...	11,294	11,931,896	18,231	520	4,233	8,187	1,062	15,583
1873 ...	15,612	14,490,042	20,512	550	6,392	9,706	1,220	18,638
1874 ..	17,156	17,179,034	27,485	800	7,673	10,591	1,291	19,404
1875 ...	27,610	21,321,265	33,296	800	7,856	14,898	1,408	23,495
1876 ...	30,073	25,417,571	32,167	1,046	8,989	16,322	1,397	25,923
1877 ...	19,830	26,995,865	31,368	1,515	10,414	19,120	1,545	27,985
1878 ...	65,489	27,477,299	31,245	1,568	10,100	22,236	1,389	23,604
1879 ...	24,353	37,351,243	33,398	1,568	10,498	24,184	1,332	23,050
1880 ..	13,810	44,919,031	35,752	1,568	13,014	29,908	1,299	22,724
1881 ...	19,242	58,253,093	40,444	1,584	12,644	20,453	1,654	23,344
1882 ...	21,120	137,256,300	65,919	1,584	13,976	22,208	1,909	24,839
1883 ...	30,750	161,347,734	93,798	1,584	14,650	24,106	1,987	25,799
1884 ...	39,895	148,550,986	90,471	1,885	15,031	26,180	2,002	25,445
1885 ...	54,192	153,775,473	100,238	2,288	17,023	29,851	2,082	28,148
1886 ..	38,945	129,219,079	104,448	2,405	20,729	31,113	2,176	29,134
1887 ...	25,406	123,361,085	76,892	2,548	23,468	40,299	2,871	32,446
1888 ...	21,583	108,667,013	78,296	2,961	23,405	35,429	3,096	30,809
1889 ...	1,417,277	107,194,183	80,102	2,961	24,458	33,702	2,965	32,144
1890 ...	1,838,768	104,921,357	104,384	2,961	26,594	36,609	3,014	34,616
1891 ...	24,474	107,472,756	99,446	2,961	31,336	41,243	3,564	46,181
1892 ...	326,062	100,475,799	73,274	3,388	35,572	49,975	4,443	61,[illegible]
1893 ...	363,422	94,603,585	69,663	3,678	41,142	57,884	4,745	74,[illegible]
1894 ...	55,004	90,216,400	78,961	4,403	61,068	77,459	6,310	141,[illegible]
1895 ..	228,010	88,080,252	153,876	4,577	112,654	108,578	8,374	221,816
1896 ...	46,622	85,385,046	160,001	5,430	187,609	269,012	16,160	460,611
1897 ...	31,450	90,802,888	161,162	5,845	221,572	298,900	26,317	[illegible]
1898 ..	13,894	94,011,075	169,999	5,886	203 722	267,108	29,791	1,072,[illegible]
1899 ...	31,054	93,316,857	132,470	5,941	203,962	230,700	29,371	1,116,179
1900 ...	48,961	90,448,309	150,216	6,052	206,475	248,877	33,646	1,299,144
1901 ...	6,393	103,572,193	149,946	6,173	218,818	251,289	39,318	1,618,359
1902 ...	48,846	118,476,434	149,863	6,112	232,591	259,499	45,108	1,[illegible]
1903 ...	128,415	142,580,489	163,644	6,079	221,323	277,021	48,008	1,[illegible]
1904 ...	78,650	147,678,342	179,481	6,199	235,664	300,727	54,873	2,079,763

a Licenses to occupy Crown lands first issued in 1848; the records prior to 1856 are not obtainable. b. Departmental figures. c. Total for the years, 1832 to 1836, both inclusive. d. The figures for 1893 and subsequent years are for year ended 30th June. e. No records obtainable.

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No. 6.—*Commerce.*

Year.	Shipping. Inward. Ships.	Shipping. Inward. Tons.	Shipping. Outward. Ships.	Shipping. Outward. Tons.	Imports.	Exports.
					£	£
...	18	5,209	18	5,209	50,284	a
...	39	11,601	39	11,601	114,177	a
...	27	3,469	27	3,469	50,727	1,025
...	137	39,850	137	39,850	b	b
...	36	7,855	36	7,850	20,350	13,353
...	64	15,988	67	14,748	52,351	22,135
...	95	27,537	93	26,807	105,320	46,314
...	112	26,681	112	26,604	122,938	44,740
...	117	59,822	116	59,452	94,532	59,947
...	116	58,830	113	56,719	144,982	78,649
...	111	63,414	106	57,665	125,315	93,037
...	109	54,564	126	62,615	169,075	89,247
...	110	57,456	109	57,800	147,913	95,789
...	105	54,471	103	50,455	172,991	119,313
..	91	48,058	87	46,219	157,137	143,106
...	96	45,972	95	47,836*	168,707	111,902
...	115	51,741	117	52,411	168,414	179,148
...	116	57,319	114	56,417	251,907	152,240
...	109	50,242	110	51,077	204,613	174,080
...	125	56,223	114	52,195	225,614	192,636
.	119	62,705	135	65,812	256,729	205,502
.	127	65,716	131	67,730	213,259	200,985
..	113	62,279	123	64,669	198,011	199,281
...	146	69,306	148	68,411	226,656	209,197
.	137	69,669	150	70,568	297,328	265,217
.	144	65,351	153	67,476	364,263	428,837
...	154	66,919	151	67,242	349,840	391,217
...	173	79,108	157	75,018	396,037	397,293
...	142	73,596	148	78,621	362,706	373,351
..	155	80,655	161	82,098	379,050	428,491
...	162	84,951	162	85,086	407,299	494,883
...	165	123,985	168	126,444	353,669	499,183
...	185	145,048	183	139,998	404,831	502,769
...	202	172,698	201	171,549	508,755	583,055
...	219	194,273	212	194,829	516,846	447,010
...	231	227,881	211	215,005	521,167	405,693
...	232	231,761	229	236,274	650,391	446,692
...	312	262,158	261	239,461	758,012	630,393
...	266	252,323	248	240,527	832,213	604,656
..	263	402,807	266	409,596	796,250	680,345
...	349	497,232	345	507,586	818,127	761,392
...	281	484,534	267	420,327	874,447	671,813
...	310	533,433	288	512,122	1,280,093	799,466
...	356	572,090	320	552,475	1,391,109	862,148
...	293	539,953	288	531,465	1,494,438	918,147
...	372	675,775	349	653,303	2,114,414	1,251,406
...	485	814,368	433	764,185	3,774,951	1,332,554
...	768	1,105,907	683	1,030,471	6,493,557	1,650,226
...	721	1,196,760	707	1,181,072	6,418,565	3,940,096
...	633	1,199,894	631	1,189,732	5,241,965	4,960,006
...	685	1,333,052	668	1,305,596	4,473,532	6,9[illegible]5,642
...	769	1,625,696	747	1,606,332	5,962,178	6,852,054
...	884	1,842,236	901	1,872,027	6,454,171	8,515,623
...	763	1,671,169	765	1,686,905	7,218,352	9,051,358
...	708*	1,673,154	703	1,662,741	6,769,922	10,324,732
.	651	1 773,632	655	1,777,186	6,672,480	10,271,489

exports up to the year 1834 consisted only of supplies to shipping, of which no record was kept. b No records obtainable.

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No. 7.—*Export of certain* Articles, the produce of the State.*

Year.	Lead (Pig Lead and Ore).	Copper (Ingot, Ore, etc.).	Tin (Ingot and Ore.)	Wool.		Timber.	
	Value.	Value.	Value.	Quantity.	Value.	Loads.	Value.
	£	£	£	lbs.	£	£	£
1834†	...	...	...	7,585	758	..	.
1835	...	...	...	10,250	1,025	...	
1840	...	...	...	50,000	2,500	...	
1845	...	...	...	144,390	7,219	...	
1850	55	...	...	309,640	15,482	210	1,048
1855	2,925	26	...	493,073	24,723	1,538	12,076
1856	1,200	1,018	...	500,996	25,672	1,410	9,871
1857	2,410	1,920	...	478,496	35,896	1,384	9,449
1858	1,220	9,531	...	543,504	33,969	565	2,340
1859	630	14,122	...	594,665	44,599	1,345	6,051
1860	985	8,021	...	656,815	49,261	1,096	4,932
1861	790	6,339	...	723,965	54,297	555	2,497
1862	90	12,536	...	806,006	60,450	1,576	7,151
1863	2,300	12,208	...	1,121,183	84,088	658	2,963
1864	800	17,216	...	550,598	41,294	1,166	5,308
1865	8,436	13,290	...	1,358,874	101,915	3,679	15,698
1866	10,824	5,055	...	1,234,070	92,555	1,713	6,849
1867	3,332	8,362	...	1,312,016	87,467	1,135	4,541
1868	13,206	1,245	...	1,572,068	98,254	160	638
1869	8,394	2,325	...	1,880,426	94,021	3,598	14,274
1870	14,514	90	...	1,787,812	89,390	3,144	17,551
1871	5,040	...	...	1,665,915	111,061	4,370	15,304
1872	4,368	...	...	1,839,562	122,637	740	3,360
1873	11,586	847	...	1,761,323	132,099	1,383	4,771
1874	25,725	998	...	2,874,992	215,624	6,912	24,192
1875	27,557	3,071	...	2,428,160	182,112	6,847	23,965
1876	26,453	4,185	...	2,831,174	165,152	4,361	23,743
1877	47,481	802	...	3,992,487	199,624	6,723	33,979
1878	43,410	135	...	3,019,051	150,953	11,618	63,902
1879	33,300	...	...	3,505,688	175,284	12,515	69,742
1880	15,457	120	...	4,342,606	271,412	13,251	66,252
1881	11,224	...	...	4,107,038	256,689	15,855	79,277
1882	14,348	22	...	4,819,758	301,235	18,730	93,650
1883	7,266	75	...	3,861,927	225,279	19,940	79,760
1884	4,872	1,770	...	4,272,948	249,255	17,234	68,936
1885	3,255	1,792	...	4,968,000	248,400	16,963	67,850
1886	4,277	3,735	...	6,135,917	332,578	12,533	50,092
1887	4,830	345	...	6,675,713	333,786	7,096	28,384
1888	5,360	1,488	...	8,475,240	423,762	10,515	42,060
1889	2,500	1,904	300	9,501,695	395,904	15,770	63,080
1890	2,135	136	5,400	6,969,380	261,352	23,444	82,082
1891	250	4,462	10,200	8,783,073	339,365	25,479	89,179
1892	150	8,696	13,843	8,712,080	326,703	21,653	78,419
1893	...	606	11,134	10,742,948	244,972	10,259	33,8[illegible]
1894	...	...	15,274	9,432,876	232,201	21,274	74,804
1895	...	12,952	9,703	8,290,805	183,510	25,105	88,146
1896	...	100	4,338	10,995,659	267,506	30,912	116,480
1897	15	1,033	3,275	12,374,881	295,646	47,866	192,451
1898	33	4,266	2,760	10,126,306	287,731	81,723	326,195
1899	1,173	41,452	23,163	9,948,417	423,296	138,271	583,198
1900	242	33,937	57,050	9,094,743	270,718	114,508	486,651
1901	...	110,769	52,102	13,578,963	378,135	143,012	572,354
1902	...	12,904	39,398	12,932,271	458,078	125,135	500,533
1903	...	37,815	52,133	12,907,065	443,743	‡154,918	619,705
1904	63,170	7,859	41,042	12,213,635	419,395	‡161,636	654,949

* For Gold Export, *see* "Gold Production," page 1186. † *See* Table No. 6, note a.
‡ Approximate figures only.

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7.—*Export of certain Articles, the Produce of the State*—continued.

Sandalwood.		Grain.	Potatoes.	Flour.	Horses.	Cattle.	Sheep.	Pearl Shells.	Pearls. a	Guano.
Tons.	Value.	Value.	Value.	Value.	Value.	Value.	Value.	Value.	Value.	Value.
	£	£	£	£	£	£	£	£	£	£
...	..	...	300	...			...	..	...	
...	...	38	220	...	240	190	34	...	...	
4	40	123	392	.	340	136	155	.	...	
...	...	...	96	...	484	24	118	.	...	
..	...	...	...	...	1,780	7	.	...	.	125
		...	...	...	2,060		..	...	...	
280	2,524	...	1,299	168	1,782	.	...	..	..	
745	7,455	208	1,224	880	14,035		...	...	..	...
1,278	17,259	15	812	120	2,730	20		.	...	..
1,687	16,360	10	630	220	600	..	2,200	...	...	.
2,558	24,945	84	168	5	1,720	10	30	...	...	
2,393	21,541	...	165	468	5,280	.	.	250	..	.
2,807	25,265	2	6	...	6,050	..		.		.
2,724	24,520	50	381	3,750	11,825	56	25	5		
2,686	13,490	124	353	8,270	8,167	161	133	..	.	175
2,965	23,722	..	138	1,963	5,170	14	6	7	.	.
2,305	18,442	110	161	12,457	8,074	28	50	556	...	...
2,256	26,045	3,922	96	17,445	4,288	14	7	5,554	...	.
2,124	32,998	...	512	600	12,272	224	191	6,490		.
2,112	48,880		172	..	4,544	..	240	9,431	50	
2,366	26,926	812	30	4,822	6,648	504	526	12,895		
2,942	31,536	...	...	2,430	5,124	231	1,132	25,890		107
2,292	62,916	...	...	...	4,396	84	370	28,398	6,000	...
2,057	70,572	...	...	28	5,600	469	...	62,162	12,000	.
2,646	66,465	..	..	...	2,758	84	...	64,642	12,000	...
2,577	65,772	..	...	..	10,822	357	35	75,292	8,000	397
2,247	31,851	...	..	.	7,900	875	..	12,450	10,000	6,000
2,675	35,064	..	...	...	9,367	1,701	94	25,692	12,000	66,085
2,667	35,001	.		...	11,987	196	438	86,405	12,000	54,184
2,197	51,970	3,850	.	1,231	8,975		102	39,710	12,000	6,650
2,716	77,165	472	..		11,125	280	160	38,923	12,000	..
2,605	96,050	...		.	7,600	1,043		39,870	17,500	
2,531	56,250	.			11,350	714	...	32,016	17,500	2,984
2,530	20,960	...			13,100	679	454	15,312	10,000	7,500
2,527	36,216	..	.	..	10,475	448	794	43,466	15,000	3,482
2,431	27,450	.	...	.	3,873	70	760	104,964	15,000	66,025
2,317	34,533	..			5,811	63	430	110,427	15,000	20,327
2,270	33,525	..		...	4,838		300	59,311	25,000	12,440
2,285	57,465	...	..		5,186	490	2,040	98,555	30,000	8,498
2,236	51,355	.		..	5,062	483	831	98,283	40,000	7,963
2,160	37,600			.	1,476	231	1,240	100,527	40,000	15,628
2,116	42,870		.		2,450	178	190	79,250	40,000	4,249
2,093	32,160				740	125	520	70,254	30,000	7,062
2,084	23,430				285		520	37,846	25,000	3,019
2,051	30,983				850			37,250	30,000	200
2,048	65,840				590		294	30,211	30,000	4,506
2,052	49,440				2,047		1,140	40,253	30,000	1,250
2,049	31,812				1,047	1,102	105	78,794	30,000	9,296
2,084	29,719		426	193	987	1,250	470	90,647	30,000	5,106
2,085	39,038	243	640	400	7,652	18	1,250	96,513	30,000	7,527
2,084	73,931	21	641	413	7,675	10	1,954	106,770	25,000	2,742
2,085	61,771		180		1,305	10,526	2,250	130,680	40,000	4,840
2,085	37,913		20		145		65	176,222	40,000	2,074
2,090	25,417	1,580	6	41	1,000		922	124,506	40,000	4,626

a Estimated Value. b See Table No. 6, Note a.

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2.—SUMMARY OF STATISTICS OF WESTERN AUSTRALIA.

NOTE.—In the population figures contained herein, allowance for unrecorded departures from 1st April, 1901, has been made in accordance with the resolutions of the 1903 Conference of Statisticians.

POPULATION AND VITAL STATISTICS.

No. 1.—*Population of Western Australia (exclusive of full-blooded Aboriginals) since 1895.*

Period.	Estimated Population on the last day of period referred to.			Increase during period by excess of arrivals over departures and excess of births over deaths.		Number of Females to 100 Males.	Mean Population.
	Males.	Females.	Total.	Numerical.	Rate per cent. per annum.		
Year 1895	66,579	34,564	101,143	19,129	23·32	51·91	90,145
Do. 1896	91,586	46,210	137,796	36,653	36·24	50·46	122,696
Do. 1897	103,880	57,814	161,694	23,898	17·34	55·65	155,563
Do. 1898	105,440	62,370	167,810	6,116	3·78	59·15	168,999
Do. 1899	105,708	64,943	170,651	2,841	1·69	61·44	168,528
Do. 1900	109,923	69,785	179,708	9,057	5·31	63·49	176,905
Do. 1901	118,241	75,868	194,109	14,401	8·01	64·16	188,313
Do. 1902	129,386	83,941	213,327	19,218	9·90	64·88	205,755
Do. 1903	135,961	90,993	226,954	13,627	6·39	66·93	221,278
Do. 1904	144,256	98,033	242,289	15,335	6·76	67·96	236,516
Month of June, 1905	149,167	102,059	251,226	1,420	6·82	68·42	250,516
Do. October, 1905*	**150,668**	**103,889**	**254,557**	**331**	**1·56**	**68·95**	**254,392**
Ten months ended 31st October, 1905*	**150,668**	**103,889**	**254,557**	**12,268**	**6·06**	**68·95**	**249,392**

* All figures in heavy type are preliminary figures, liable to revision.

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No. 2.—Immigration into and Emigration from Western Australia since 1895.

Period.	Immigration.			† Emigration.			Excess of Immigration over Emigration.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Year 1895	22,245	7,278	29,523	8,778	2,385	11,163	13,467	4,893	18,360
Do. 1896	40,274	14,941	55,215	15,252	4,072	19,324	25,022	10,869	35,891
Do. 1897	32,375	17,012	49,387	20,292	6,575	26,867	12,083	10,437	22,520
Do. 1898	20,874	11,835	32,709	20,095	8,750	28,845	779	3,085	3,864
Do. 1899	12,094	8,184	20,278	12,949	7,338	20,287	‡ 855	846	‡ 9
Do. 1900	14,600	10,321	24,921	11,687	7,391	19,078	2,913	2,930	5,843
Do. 1901	21,249	11,513	32,762	14,224	7,336	21,560	7,025	4,177	11,202
Do. 1902	24,896	12,964	37,860	15,160	6,891	22,051	9,736	6,073	15,809
Do. 1903	19,294	11,649	30,943	14,323	6,904	21,227	4,971	4,745	9,716
Do. 1904	19,509	12,008	31,517	13,057	7,484	20,541	6,452	4,524	10,976
Quarter ended 31st March, 1905 ...	5,752	3,300	9,052	3,335	2,186	5,521	2,417	1,114	3,531
Quarter ended 30th June, 1905 ...	4,475	3,220	7,695	2,899	1,568	4,467	1,576	1,652	3,228
Quarter ended 30th September, 1905...	3,383	2,266	5,649	2,609	1,527	4,136	774	739	1,513
Month of October, 1905 *	**1,114**	**794**	**1,908**	**1,252**	**714**	**1,966**	**‡ 138**	**80**	**‡ 58**
Ten months ended 31st October, 1905*	**14,724**	**9,580**	**24,304**	**10,095**	**5,995**	**16,090**	**4,629**	**3,585**	**8,214**

* All figures in heavy type are preliminary figures, liable to revision. † Including allowance for unrecorded departures.
‡ Excess of Emigration over Immigration.

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No. 3.—*Nationalities of Immigrants to and Emigrants from Western Australia recorded during 1904 and the nine months ended 30th September, 1905.*

Nationality.	Arrivals.						Departures.						Excess of Arrivals over Departures.					
	Year 1904.			Nine months ended 30th September, 1905.			Year 1904.			Nine months ended 30th September, 1905.			Year 1904.			Nine months ended 30th September, 1905.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
EUROPEAN.																		
British	17,613	11,853	29,466	12,466	8,656	21,122	10,870	7,014	17,884	7,482	4,959	12,441	6,743	4,839	11,582	4,984	3,697	8,681
Italian	466	15	481	307	23	330	503	12	515	355	10	365	*37	3	*34	*48	13	*35
German	174	55	229	101	44	145	141	46	187	100	27	127	33	9	42	1	17	18
French	19	11	30	12	10	22	30	15	45	9	10	19	*11	*4	*15	3	...	3
Russian	39	16	55	18	10	28	4	6	10	5	4	9	35	10	45	13	6	19
Greek	52	6	58	22	...	22	21	1	22	12	3	15	31	5	36	10	*3	7
Austrian	88	5	93	86	3	89	77	...	77	30	...	30	11	5	16	56	3	59
Spanish	13	12	25	5	1	6	6	1	7	2	...	2	7	11	18	3	1	4
Swedish	11	4	15	20	2	22	11	4	15	3	...	3	...	...	...	17	2	19
Hungarian ...	3	...	3	2	...	2	...	...	...	...	...	...	3	...	3	2	...	2
Danish	9	8	17	26	9	35	3	2	5	...	...	...	6	6	12	26	9	35
Swiss	5	1	6	11	...	11	5	...	5	3	...	3	...	1	1	8	...	8
Dutch	2	1	3	2	1	3	3	2	5	2	1	3	*1	*1	*2	...	...	...
Bohemian ...	1	...	1	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...
Belgian	...	1	1	1	1	2	...	...	...	...	...	...	...	1	1	1	1	2
Norwegian ...	1	...	1	8	7	15	4	...	4	...	1	1	*3	...	*3	8	6	14
Roumanian ...	1	1	2	...	...	...	...	...	...	1	...	1	1	1	2	*1	...	*1
Turkish	1	...	1	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...
Portuguese ...	...	...	...	...	...	...	...	..	...	1	...	1	...	...	...	*1	...	*1

[illegible]	295	...	295	146	...	146	308	...	308	106	...	106	*13	...	*13	40	...	40
Chinese	172	3	175	108	2	110	128	3	131	108	4	112	44	...	44	...	*2	*2
Manillamen ...	33	...	33	63	...	63	87	...	87	25	...	25	*54	...	*54	38	...	38
Japanese	249	6	255	112	4	116	141	12	153	100	6	106	108	*6	102	12	*2	10
Afghan	4	...	4	6	...	6	43	...	43	36	...	36	*39	...	*39	*30	...	*30
Indian	25	...	25	3	...	3	24	2	26	4	1	5	1	*2	*1	*1	*1	*2
Javanese	98	...	98	63	...	63	4	...	4	23	...	23	94	...	94	40	...	40
Arab	2	...	2	1	...	1	...	...	...	...	...	...	2	...	2	1	...	1
Timorese	109	...	109	...	...	...	...	...	...	1	...	1	109	...	109	*1	...	*1
Persian	...	...	...	...	...	...	1	...	1	...	...	...	*1	...	*1	...	...	...
Syrian	1	...	1	1	4	5	...	...	...	...	...	...	1	...	1	1	4	5
Cingalese ...	...	...	...	2	...	2	...	...	...	1	...	1	...	...	...	1	...	1
Undefined ...	...	...	...	...	...	...	2	...	2	...	...	...	*2	...	*2	...	...	...
African.																		
Algerian	1	...	1	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...
Mauritian ...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	1	...	1
American.																		
U.S.A.	3	1	4	2	...	2	3	2	5	...	...	...	...	*1	*1	2	...	2
Chilian	1	...	1	...	...	...	...	...	...	2	...	2	1	...	1	*2	...	*2
Argentinian ...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	1	...	1
Undefined ...	12	7	19	9	5	14	8	5	13	4	...	4	4	2	6	5	5	10
Polynesian.																		
Maori	2	...	2	...	...	...	...	...	...	...	...	...	2	...	2	...	...	...
Hawaiian ...	...	...	...	...	...	...	1	...	1	1	...	1	*1	...	*1	*1	...	*1
Indefinite.																		
Jewish	1	2	3	1	...	1	4	1	5	2	...	2	*3	1	*2	*1	...	*1
Negro	3	...	3	4	4	8	2	...	2	4	3	7	1	...	1	...	1	1
Total ...	19,509	12,008	31,517	13,610	8,786	22,396	12,435	7,128	19,563	8,422	5,029	13,451	7,074	4,880	11,954	5,188	3,757	8,945

* Excess of departures over arrivals.

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No. 4.—*Immigrants to and Emigrants from Western Australia recorded during 1904 and the nine months ended 30th September, 1905, classified according to countries from which arrived or to which bound.*

Countries from which arrived or to which bound.	Arrivals.						Departures.						Excess of Arrivals over Departures.					
	Year 1904.			Nine months ended 30th September, 1905.			Year 1904.			Nine months ended 30th September, 1905.			Year 1904.			Nine months ended 30th September, 1905.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
AUSTRALASIA.																		
Victoria	7,560	5,582	13,142	5,361	4,173	9,534	4,033	3,041	7,074	2,919	2,232	5,151	3,527	2,541	6,068	2,442	1,941	4,383
South Australia...	6,721	3,938	10,659	4,636	2,860	7,496	4,406	2,375	6,781	2,748	1,514	4,262	2,315	1,563	3,878	1,888	1,346	3,234
New South Wales	2,231	1,490	3,721	1,600	1,113	2,713	1,568	958	2,526	995	688	1,683	663	532	1,195	605	425	1,030
Tasmania ...	8	7	15	17	11	28	...	...	...	...	...	...	8	7	15	17	11	28
New Zealand ...	18	13	31	...	...	...	1	...	1	...	...	...	17	13	30	...	...	...
Queensland ...	1	...	1	1	2	3	...	...	...	5	9	14	1	...	1	*4	*7	*11
EUROPE.																		
Great Britain ...	733	573	1,306	792	419	1,211	746	507	1,253	613	376	989	*13	66	53	179	43	222
Italy	536	39	575	375	33	408	517	42	559	352	29	381	19	*3	16	23	4	27
Belgium	168	118	286	65	45	110	1	...	1	...	...	...	167	118	285	65	45	110
France	114	38	152	47	23	70	25	17	42	53	23	76	89	21	110	*6	...	*6
Germany	48	25	73	29	16	45	35	17	52	33	12	45	13	8	21	*4	4	...
Gibraltar ...	...	...	...	...	...	...	1	1	2	...	...	...	*1	*1	*2	...	...	...

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Asia.																		
Straits Settlements	850	40	890	495	23	518	737	33	770	392	21	413	113	7	120	103	2	105
Ceylon	89	29	118	57	22	79	85	28	113	56	17	73	4	1	5	1	5	6
India	12	1	13	2	...	2	10	5	15	3	...	3	2	*4	*2	*1	...	*1
Java	1	...	1	9	3	12	...	...	...	8	6	14	1	...	1	1	*3	*2
Timor	127	...	127	...	...	...	17	3	20	...	...	...	110	*3	107	...	...	...
Aden	1	...	1	...	...	...	9	...	9	4	...	4	*8	...	*8	*4	...	*4
Africa.																		
Egypt	68	17	85	21	14	35	48	2	50	28	...	28	20	15	35	*7	14	7
South Africa ...	223	98	321	103	29	132	192	99	291	204	101	305	31	*1	30	*101	*72	*173
Canary Islands ...	...	...	...	...	...	...	...	...	...	9	...	9	...	...	...	*9	...	*9
America.																		
U.S.A.	...	...	...	...	...	...	3	...	3	...	...	...	*3	...	*3	...	...	...
Pacific Islands.																		
New Caledonia ...	...	...	...	...	...	...	1	...	1	...	1	1	*1	...	*1	...	*1	*1
Total ...	19,509	12,008	31,517	13,610	8,786	22,396	12,435	7,128	19,563	8,422	5,029	13,451	7,074	4,880	11,954	5,188	3,757	8,945

* Excess of departures over arrivals.

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No. 5.—*Number of Marriages, Births, and Deaths registered in Western Australia since 1895.*

Period.	Number of Marriages registered during the period.	Number of Births registered during the Period.			Number of Deaths registered during the Period.			Excess of Births over Deaths.	Annual Birth, Death, and Marriage Rate per 1,000 of the mean Population, represented by the number of registrations.		
		Males.	Females.	Total.	Males.	Females.	Total.		Birth Rate.	Death Rate.	Marriage Rate.
Year 1895	633	1,192	1,181	2,373	1,201	403	1,604	769	26·32	17·79	7·02
Do. 1896	1,077	1,435	1,347	2,782	1,450	570	2,020	762	22·67	16·46	8·78
Do. 1897	1,659	2,036	1,985	4,021	1,825	818	2,643	1,378	25·85	16·99	10·66
Do. 1898	1,674	2,574	2,394	4,968	1,793	923	2,716	2,252	29·40	16·07	9·91
Do. 1899	1,671	2,636	2,538	5,174	1,513	811	2,324	2,850	30·70	13·79	9·92
Do. 1900	1,781	2,789	2,665	5,454	1,487	753	2,240	3,214	30·83	12·66	10·07
Do. 1901	1,821	2,946	2,772	5,718	1,653	866	2,519	3,199	30·36	13·38	9·67
Do. 1902	2,024	3,241	2,991	6,232	1,832	991	2,823	3,409	30·29	13·72	9·84
Do. 1903	2,064	3,433	3,266	6,699	1,829	959	2,788	3,911	30·27	12·60	9·33
Do. 1904	2,088	3,666	3,510	7,176	1,823	994	2,817	4,359	30·34	11·91	8·83
Quarter ended 31st March, 1905 ...	544	847	827	1,674	450	251	701	973	27·38	11·47	8·90
Quarter ended 30th June, 1905 ...	582	970	965	1,935	450	280	730	1,205	31·08	11·73	9·35
Quarter ended 30th September, 1905*	**466**	**1,037**	**1,033**	**2,106**	**382**	**237**	**619**	**1,487**	**33·33**	**9·80**	**7·37**
Month of October, 1905*	**176**	**321**	**281**	**602**	**147**	**66**	**213**	**389**	**28·40**	**10·05**	**8·30**
Ten months ended 31st October, 1905*	**1,768**	**3,211**	**3,106**	**6,317**	**1,429**	**834**	**2,263**	**4,054**	**30·40**	**10·89**	**8·51**

* All figures in heavy type are preliminary figures, liable to revision.

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No. 6.—*Population of Municipalities.*

Municipality.	Rough Census. March-April, 1903.			
	Males.	Females.	Total.	Females to 100 Males.
	No.	No.	No.	No.
Albany	1,708	1,727	3,435	101·11
Beverley	131	106	237	80·91
Boulder	3,090	2,568	5,658	83·11
Broad Arrow	411	232	643	56·45
Bulong	156	115	271	73·72
Bunbury	1,343	1,334	2,677	99·33
Busselton	210	232	442	110·48
Carnarvon *	186	104	290	55·91
Claremont	1,325	1,402	2,727	105·81
Collie	974	739	1,713	75·87
Coolgardie	2,124	1,706	3,830	80·32
Cossack *	127	39	166	30·71
Cue	457	313	770	68·49
Day Dawn	372	251	623	67·47
Esperance	159	147	306	92·45
Fremantle †	9,155	7,212	16,367	78·78
Fremantle, East	1,569	1,494	3,063	95·22
Fremantle, North	1,879	1,699	3,578	90·42
Geraldton	1,339	1,165	2,504	87·01
Gingin	104	64	168	61·54
Guildford	812	854	1,666	105·17
Kalgoorlie	3,904	2,876	6,780	73·67
Kanowna	730	482	1,212	66·03
Kookynie	1,074	446	1,520	41·53
Leederville	1,872	1,837	3,709	98·13
Leonora	248	160	408	64·52
Malcolm	303	146	449	48·18
Menzies	610	436	1,046	71·48
Midland Junction	1,242	966	2,208	77·78
Mt. Magnet	153	121	274	79·08
Mt. Morgans	488	239	727	48·98
Nannine	112	40	152	35·71
Newcastle	165	192	357	116·36
Norseman	154	99	253	64·29
Northam	1,305	1,121	2,426	85·90
Paddington	138	80	218	57·97
Perth ‡	16,823	14,848	31,671	88·26
Perth, North	797	737	1,534	92·47
Perth, South	479	468	947	97·70
Roebourne *	212	100	312	47·17
Southern Cross	328	244	572	74·39
Subiaco	2,368	2,334	4,702	98·56
Victoria Park	723	677	1,400	93·64
York	654	685	1,339	104·74

* Returns of Census Day, 31st March, 1901. † Population of Fremantle and suburbs (including the Municipalities of Fremantle, East and North Fremantle) on 31st December, 1904, estimated at: Males, 13,800; females, 11,900.—Total, 25,700. ‡ Population of Perth and suburbs (including the Municipalities of Perth, Subiaco, Leederville, Victoria Park, South Perth, North Perth, etc.) on 31st December, 1904, estimated at:—Males, 25,500; females, 24,100.—Total, 49,600.

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No. 7.—*Details of State Revenue of Western Australia.*

Period.	Collected by the State.								Surplus Commonwealth Revenue returned to the State.	Total State Revenue.	Total State Revenue per head of mean population.		
	Taxation.	Land.	*Mining.	Railways and Tramways.	Water Supply.	Harbour.	Other Sources.	Total.					
	£	£	£	£	£	£	£	£	£	£	£	s.	d.
Year ended 30th June, 1902 ...	173,582	145,738	113,644	1,488,574	15,034	23,776	168,699	2,129,047	1,225,076	3,354,123	17	1	7
Do. do. 1903 ...	221,247	156,659	116,590	1,598,023	30,048	42,159	209,781	2,374,507	1,255,731	3,630,238	18	18	9
Do. do. 1904 ...	235,114	176,238	121,262	1,612,608	78,259	64,047	197,244	2,484,772	1,065,244	3,550,016	15	10	7
Do. do. 1905 ...	221,737	178,630	136,981	1,629,956	99,761	67,716	252,661	2,587,442	1,027,898	3,615,340	14	16	7
Month of July, 1905	16,117	4,497	7,237	70,536	1,082	3,616	10,229	113,314	83,115	196,429	0	15	7
Do. August, 1905 ...	10,094	8,911	12,086	132,465	9,547	5,841	14,833	193,777	77,919	271,696	1	1	6
Do. September, 1905 ...	21,941	47,968	8,903	124,718	8,505	6,107	14,531	232,673	86,027	318,700	1	5	2
Quarter ended 30th September, 1905	48,152	61,376	28,226	327,719	19,134	15,564	39,593	539,764	247,061	786,825	3	2	3
Month of October, 1905 ...	22,730	10,274	16,223	140,794	7,449	5,901	14,504	217,875	65,975	283,850	1	2	4
Four months ended 31st October, 1905	70,882	71,650	44,449	468,513	26,583	21,465	54,097	757,639	313,036	1,070,675	4	4	7

* Including Revenue from Public Batteries and State Smelting Works.

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No. 8.—*Details of State Expenditure of Western Australia.*

Period.	Interest and Sinking Funds on Public Debt.	Railways and Tramways.	Public Works and Buildings.	Mines.	Police.	Education.	Medical and Lunacy.	Charities.	All other Expenditure.	Total State Expenditure.	Total State Expenditure per head of mean population.		
	£	£	£	£	£	£	£	£	£	£	£	s.	d.
Year ended 30th June, 1902 ...	602,138	1,269,619	273,522	101,958	123,724	102,359	90,115	26,227	561,765	3,151,427	16	0	11
Do. do. 1903 ...	692,692	1,275,565	428,051	119,962	130,308	120,305	88,794	30,033	636,053	3,521,763	16	8	8
Do. do. 1904 ...	714,634	1,228,235	518,109	189,280	126,997	134,337	90,618	32,736	663,366	3,698,312	16	3	7
Do. do. 1905 ..	764,933	1,297,499	337,927	248,496	123,681	149,552	94,689	33,041	695,406	3,745,224	15	7	3
Month of July, 1905	67,660	59,457	18,897	10,111	8,571	10,859	5,646	783	34,675	216,659	0	17	3
Do. August, 1905	67,660	96,479	19,996	18,481	10,433	12,193	7,826	2,818	56,951	292,837	1	3	2
Do. September, 1905 ...	67,660	101,338	20,819	17,582	9,011	14,044	6,213	2,504	55,079	294,250	1	3	2
Quarter ended 30th September, 1905	202,980	257,274	59,712	46,174	28,015	37,096	19,685	6,105	146,705	803,746	3	3	7
Month of October, 1905	67,660	100,054	20,228	23,888	9,892	12,793	7,286	2,816	56,633	301,250	1	3	8
Four months ended 31st October, 1905	270,640	357,328	79,940	70,062	37,907	49,889	26,971	8,921	203,338	1,104,996	4	7	3

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No. 9.—*Commonwealth Revenue collected in respect of Western Australia.*

Period.	Taxation.			Post Office, Telegraph and Telephone.	Other Sources.	Total collected by Commonwealth.
	Customs.	Excise.	Total.			
	£	£	£	£	£	£
Year ended 30th June, 1902	1,273,125	62,489	1,335,614	225,752	172	1,561,538
Do. do. 1903	1,317,770	78,232	1,396,002	225,244	716	1,621,962
Do. do. 1904	1,154,854	107,155	1,262,009	230,858	829	1,493,696
Do. do. 1905	1,036,757	135,307	1,172,064	257,489	1,938	1,431,491
Month of July, 1905	69,985	8,977	78,962	28,348	146	107,456
Do. August, 1905	*	*	96,348	17,637	223	114,208
Two months ended 31st August, 1905†	*	*	175,310	45,985	369	221,664

* Details not available. † Commonwealth details for September and October not yet available.

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No. 10.—*Commonwealth Expenditure in respect of Western Australia.*

Period.	Customs Department.	Defence Department.	Post and Telegraph Department.	Surplus Revenue returned to State.	All other Expenditure.	Total Commonwealth Expenditure.	Balance due to State at end of period.
	£	£	£	£	£	£	£
Year ended 30th June, 1902 ...	31,991	34,967	258,570	1,225,076	14,061	1,564,665	942
Do. do. 1903 ...	34,740	32,471	280,304	1,255,731	17,524	1,620,770	2,134
Do. do. 1904 ...	36,494	60,704	305,904	1,065,244	26,559	1,494,905	925
Do. do. 1905 ...	33,937	40,039	278,133	1,027,898	48,355	1,428,362	4,054
Month of July, 1905	2,928	4,358	21,975	88,115	2,789	115,165	† 3,655
Do. August, 1905	2,959	933	21,064	77,919	2,820	105,695	4,858
Two months ended 31st August, 1905*	5,887	5,291	43,039	161,034	5,609	220,860	4,858

* Commonwealth figures for September and October not yet available. † Balance due to Commonwealth.

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No. 11.—*Total Revenue and Expenditure of Western Australia (State and Commonwealth combined).*

Period.	Total Revenue.		Total Expenditure.		Excess of	
	Amount.	Per head of mean Population.	Amount.	Per head of mean Population.	Revenue.	Expenditure.
	£	£ s. d.	£	£ s. d.	£	£
Year ended 30th June, 1896	1,858,695	17 15 5	1,823,863	17 8 9	34,832	...
Do. do. 1897	2,842,751	20 4 5	2,839,453	20 3 11	3,298	...
Do. do. 1898	2,754,747	16 15 10	3,256,912	19 17 1	...	502,165
Do. do. 1899	2,478,811	14 13 5	2,539,358	15 0 7	...	60,547
Do. do. 1900	2,875,396	16 13 10	2,615,675	15 3 8	259,721	...
Do. do. 1901	3,080,580	16 18 11	3,164,147	17 8 1	...	83,567
Do. do. 1902	3,690,585	18 15 10	3,491,016	17 15 6	199,569	...
Do. do. 1903	3,996,469	18 12 11	3,886,802	18 2 9	109,667	...
Do. do. 1904	3,978,468	17 8 1	4,127,941	18 1 2	...	149,473
Do. do. 1905	4,025,611	16 10 3	4,152,366	17 0 8	...	126,755
Two months ended 31st August, 1905	528,755	2 1 10	569,322	2 5 1	...	40,567

NOTE.—The Revenue figures given in this table for the financial years which have elapsed since the inauguration of Federation represent the total amount collected by the State, together with that collected by the Commonwealth in respect of Western Australia; whilst the Expenditure figures represent the total State expenditure, plus the Commonwealth expenditure in respect of Western Australia (exclusive of the amount returned to the State).

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No. 12.—*Revenue and Expenditure of Western Australia (State and Commonwealth) per head of Mean Population.*

Period.	Revenue.			Expenditure.		
	State.*	Commonwealth.*	Total.	State.	Commonwealth.*	Total.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Year ended 30th June, 1902	10 16 10	7 19 0	18 15 10	16 0·11	1 14 7	17 15 6
Do. do. 1903	11 1 7	7 11 4	18 12 11	16 8 8	1 14 1	18 2 9
Do. do. 1904	10 17 5	6 10 8	17 8 1	16 3 7	1 17 7	18 1 2
Do. do. 1905	10 12 3	5 18 0	16 10 . 3	15 7 3	1 13 5	17 0 8
Two months ended 31st August, 1905 ...	1 4 3	0 17 7	2 1 10	2 0 4	0 4 9	2 5 1

* Exclusive of surplus Commonwealth Revenue returned to State.

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No. 13.—*Public Debt of Western Australia in each of the Years 1896 to 1905; also Indebtedness per head of Estimated Population.*

Date.	Amount outstanding.				Average nominal rate of interest payable	Gross Indebtedness per head of Population.	Amount of Accrued Sinking Fund.	Net Indebtedness.	
	Debentures.	Inscribed Stock.	Treasury Bills.	Total.				Amount.	Per head of Population.
	£	£	£	£	°/.	£ s. d.	£	£	£ s. d.
30th June 1896	382,000	4,341,753	12,820	4,736,573	3·80	38 14 6	175,033	4,561,540	37 5 11
" " 1897	370,900	6,447,595	492,320	7,310,815	3·59	46 7 7	205,637	7,105,178	45 1 6
" " 1898	366,600	7,448,094	1,303,530	9,118,224	3·54	53 8 4	255,784	8,862,440	51 18 4
" " 1899	360,600	8,462,225	1,550,000	10,372,825	3·49	61 13 11	310,373	10,062,452	59 17 0
" " 1900	352,500	9,522,140	1,800,000	11,674,640	3·45	65 13 4	377,161	11,297,479	63 10 11
" " 1901	324,800	11,384,630	1,000,000	12,709,430	3·45	67 5 0	431,478	12,277,952	64 19 4
" " 1902	276,000	14,666,310	...	14,942,310	3·36	72 3 5	486,737	14,455,573	69 16 5
" " 1903	221,500	15,405,798	...	15,627,298	3·38	70 7 11	655,069	14,972,229	67 8 11
" " 1904	436,350	15,653,938	...	16,090,288	3·40	67 12 1	864,752	15,225,536	63 19 5
" " 1905	438,700	15,704,073	500,000	16,642,773	3·43	66 5 5	1,073,844	15,568,929	61 19 11

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(The amount shown in this table for any year is the Total Loan Expenditure for that year, less the amount credited for sales of materials, etc.)

Year.	Railways and Tramways.	Electric Telegraphs.	Harbours, Rivers, Light-houses, etc.	Roads and Bridges.	Public Buildings.	Water Supply and Sewerage.	Development of Goldfields and Mineral Resources.	Development of Agriculture.	Immigration.	Miscellaneous.	Total.
	£	£	£	£	£	£	£	£	£	£	£
Prior to 1882	274,330	73,277	19,016	33,358	8[illegible]5	...	...	...	...	...	400,856
Year 1882	29,946	..	550	8,356	81	...	...	...	...	...	38,933
Do. 1883	40,933	1,646	879	6,097	5,364	...	...	...	...	...	54,919
Do. 1884	138,645	19,505	2,460	1,609	1,233	...	...	...	...	...	163,452
Do. 1885	118,862	36,028	4,318	50	280	...	...	...	...	...	159,535
Do. 1886	107,630	8,267	10,029	52	1,527	1,540	...	...	...	...	129,048
Do. 1887	117,511	41,514	35,185	158	6,417	4,473	...	...	...	...	205,254
Do. 1888	6,953	18,348	8,383	...	8,714	1,406	...	...	...	...	43,808
Do. 1889	4,246	31,051	15,092	...	8,541	587	7,697	...	...	60,818	128,032
Do. 1890	1,497	3,105	3,011	...	4,795	759	2,239	...	...	500	15,906
Do. 1891	43,639	3,596	6,258	9,973	83	972	9,606	3,867	...	...	77,994
Do. 1892	258,017	11,673	55,847	17,568	723	136	13,202	8,000	4,064	..	369,230
Half-year ended 30th June, 1893	207,069	1,260	41,206	2,107	2,853	61	11,123	3,228	1,402	332	270,641
Year ended 30th June, 1894	505,427	28	70,474	2,188	5,790	17	67,907	4,214	2,699	446	659,190
Do. do. 1895	362,592	8,312	138,581	11,718	13,898	49	66,205	1,994	2,576	577	606,502
Do. do. 1896	409,121	11,698	194,937	12,242	59	...	7,056	13,236	2,359	..	650,708
Do. do. 1897	1,926,795	...	218,172	13,166	..	16,994	120,292	311,111	3,138	..	2,609,668
Do. do. 1898	1,385,794	...	208,392	13,635	2,633	75,757	201,007	3,833	4,737	357	1,896,145
Do. do. 1899	546,128	...	207,141	8,280	...	147,209	118,781	3,069	2,059	53	1,032,690
Do. do. 1900	151,111	...	197,488	731	...	474,615	52,613	1,343	338	90	878,329
Do. do. 1901	332,729	...	214,830	510	...	872,800	69,820	3,614	892	97	1,495,292
Do. do. 1902	578,985	...	182,962	740	...	731,989	37,267	10,365	3,433	82	1,545,823
Do. do. 1903	1,059,418	...	138,422	...	...	413,435	38,718	14,980	928	...	1,665,901
Do. do. 1904	443,339	...	84,145	...	...	130,442	41,181	12,062	*Cr.* (540)	..	710,629
Do. do. 1905	358,007	...	100,838	...	...	29,167	49,875	160,132	...	...	698,019
Total	9,408,714	269,308	2,158,616	142,538	68,876	2,902,408	914,589	555,018	28,085	63,352	16,506,504

* The expenditure from Loans has been classified in this table under the headings made use of in the Schedules to the various Loan Acts, this being the method adopted by the Treasury; information as to the total amount *actually* spent under some headings of Expenditure is consequently not obtainable, certain items being included under the indefinite heading "Development of Goldfields and Mineral Resources." "Electric Telegraphs" and "Water Supply and Sewerage" are probably most affected by this classification.

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No. 15.—*Transactions of the Post Office Savings Bank since 1896.*

Period.	Amount deposited during period.	Amount withdrawn during period.	Excess of Deposits over Withdrawals during period.	Interest for period.	Number of Accounts. Opened during period.	Closed during period.	Remaining open at end of period.	Amount due to Depositors at end of period (exclusive of accrued interest in the monthly returns).	Average amount standing to the credit of each Account remaining open at end of period.
	£	£	£	£	No.	No.	No.	£	£ s. d.
Year ended 30th June, 1896 ...	520,016	291,744	228,272	10,523	14,250	6,464	16,160	460,611	28 10 1
Do. do. 1897 ...	1,068,322	690,183	378,139	17,334	24,783	14,626	26,317	856,084	32 10 7
Do. do. 1898 ...	1,231,638	1,042,521	189,117	26,857	23,865	20,391	29,791	1,072,058	35 19 9
Do. do. 1899 ...	1,057,023	1,042,751	14,272	29,848	17,972	18,392	29,371	1,116,178	38 0 1
Do. do. 1900 ...	1,112,251	962,371	149,880	33,086	18,406	14,131	33,646	1,299,144	38 12 3
Do. do. 1901 ...	1,333,376	1,053,938	279,438	39,777	20,244	14,572	39,318	1,618,359	41 2 9
Do. do. 1902 ...	1,534,010	1,311,347	222,663	48,060	22,355	16,565	45,108	1,889,082	41 17 7
Do. do. 1903 ...	1,605,148	1,559,649	45,499	54,043	22,255	19,355	48,008	1,988,624	41 8 5
Do. do. 1904 ...	1,631,687	1,596,110	35,577	55,562	21,419	14,554	54,873	2,079,763	37 18 0
Do. do. 1905 ...	1,703,687	1,639,530	64,157	63,376	20,336	15,445	59,764	2,207,296	36 18 8
Month of July, 1905	156,566	133,649	22,917	...	1,750	1,267	60,247	2,230,213	37 0 4
Do. August, 1905 ...	146,444	141,244	5,200	* 94	1,683	1,332	60,598	2,235,507	36 17 10
Do. September, 1905 ...	149,272	131,787	17,485	* 165	1,714	1,241	61,071	2,253,157	36 17 11
Do. October, 1905 ...	145,299	139,634	5,665	* 255	1,579	1,287	61,363	2,259,077	36 16 4

* Interest on accounts closed during the month.

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No. 16.—*Averages since 1895 of the Weekly Statements of Liabilities and Assets of the Banks of Issue operating in Western Australia.*

Period.	No. of Banks.	Liabilities.						
		Notes in Circulation.	Bills in Circulation.	Balances due to other Banks.	Deposits. Not bearing Interest.	Deposits. Bearing Interest.	Deposits. Total.	Total Average Liabilities.
		£	£	£	£	£	£	£
Year 1895	6	214,679	57,465	15,185	1,593,372	996,355	2,589,727	2,877,056
Do. 1896	6	395,092	85,382	25,403	3,192,348	1,385,048	4,577,396	5,083,273
Do. 1897	6	374,993	75,396	68,774	3,096,105	973,562	4,069,667	4,588,830
Do. 1898	6	330,673	60,040	45,363	2,576,783	1,024,393	3,601,176	4,037,252
Do. 1899	6	315,189	34,658	38,507	2,547,152	1,261,477	3,808,629	4,196,983
Do. 1900	6	361,716	34,279	50,380	2,869,480	1,521,031	4,390,511	4,838,886
Do. 1901	6	378,372	40,735	73,172	2,980,390	1,456,373	4,436,763	4,929,042
Do. 1902	6	394,011	38,120	72,731	3,202,695	1,593,019	4,795,714	5,300,576
Do. 1903	6	387,920	52,930	67,309	3,311,939	1,480,151	4,792,090	5,300,249
Do. 1904	6	354,810	45,951	71,499	3,258,294	1,475,616	4,733,910	5,206,170
Quarter ended 31st March, 1905 ...	6	331,659	51,869	81,435	3,145,944	1,651,555	4,797,499	5,262,462
Quarter ended 30th June, 1905 ...	6	340,013	92,265	68,079	3,207,290	1,792,360	4,999,650	5,500,007

(*Continued on next page.*)

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No. 16.—*Averages since 1895 of the Weekly Statements of Liabilities and Assets of the Banks of Issue operating in Western Australia*—continued.

Period.	Assets.							
	Coined Gold, Silver, and other metals.	Gold and Silver in Bullion and Bars.	Government Securities.	Landed Property and Bank Premises.	Notes and Bills of other Banks.	Balances due from other Banks	Notes and Bills discounted and other Debts to Banks not before enumerated.	Total Average Assets.
	£	£	£	£	£	£	£	£
Year 1895	1,200,582	76,894	7,500	103,625	31,199	142,987	2,385,662	3,948,449
Do. 1896	2,323,962	90,657	13,750	111,421	58,708	343,430	2,812,547	5,754,475
Do. 1897	2,102,831	132,165	116,000	136,481	37,328	104,187	3,349,806	5,978,798
Do. 1898	1,631,604	195,640	58,488	158,266	41,049	128,998	3,206,434	5,420,479
Do. 1899	1,527,902	238,484	43,118	181,199	53,343	124,523	2,817,465	4,986,034
Do. 1900	2,231,438	251,202	66,862	198,626	63,457	173,555	2,756,872	5,742,012
Do. 1901	2,056,540	321,515	81,689	202,238	63,506	157,951	3,061,330	5,944,769
Do. 1902	2,265,767	506,771	100,450	211,590	57,545	73,332	3,224,106	6,439,561
Do. 1903	1,621,037	622,591	91,222	202,191	64,004	120,257	3,650,685	6,371,987
Do. 1904	1,559,006	570,298	119,701	196,754	60,736	37,817	3,854,993	6,399,305
Quarter ended 31st March, 1905	1,407,752	577,456	123,662	192,168	54,400	53,329	4,014,016	6,422,783
Quarter ended 30th June, 1905	1,820,995	568,286	123,662	190,584	51,081	30,604	4,049,321	6,834,483

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SHIPPING.

No. 17.—*Number and Tonnage of Vessels entered and cleared at Western Australian Ports from and to Ports outside the State in each Year since 1895.*

Year.	Inwards.		Outwards.		Inwards and Outwards.	
	Vessels.	Tons.	Vessels.	Tons.	Vessels.	Tons.
1895	485	814,368	433	764,185	918	1,578,553
1896	768	1,105,907	683	1,030,471	1,451	2,136,378
1897	721	1,196,760	707	1,181,072	1,428	2,377,832
1898	633	1,199,894	631	1,189,732	1,264	2,389,626
1899	685	1,333,052	668	1,305,596	1,353	2,638,648
1900	769	1,625,696	747	1,606,332	1,516	3,232,028
1901	884	1,842,236	901	1,872,027	1,785	3,714,263
1902	763	1,671,169	765	1,686,905	1,528	3,358,074
1903	708	1,673,154	703	1,662,741	1,411	3,335,895
1904	651	1,773,632	655	1,777,186	1,306	3,550,818
1905 (to 30th June)	319	866,624	319	861,512	638	1,728,136

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TRADE.

No. 18.—*Value of Imports into Western Australia in each Year since 1895.*

Imports from	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.
	£	£	£	£	£	£	£	£	£	£
United Kingdom	943,477	2,057,635	2,624,086	2,051,872	1,550,029	2,225,746	2,566,162	3,350,644	2,599,142	2,565,302
Commonwealth of Australia	2,701,797	4,084,985	3,255,252	2,734,660	2,303,844	2,675,156	2,559,020	2,046,701	2,541,368	2,650,527
New Zealand	745	20,157	22,048	9,101	8,513	68,346	124,172	274,302	163,381	66,124
Other British Possessions ...	92,062	203,425	210,100	165,123	163,190	279,593	245,532	183,667	152,003	167,289
Total, British ...	3,738,081	6,366,202	6,111,486	4,960,756	4,025,576	5,248,841	5,494,886	5,855,314	5,455,894	5,449,242
Foreign Countries	36,870	127,355	307,079	281,209	447,956	713,337	959,285	1,363,038	1,314,028	1,223,238
Grand Total	3,774,951	6,493,557	6,418,565	5,241,965	4,473,532	5,962,178	6,454,171	7,218,352	6,769,922	6,672,480
Value of Imports per head of Mean Population	£ s. d. 41 17 6	£ s. d. 52 18 6	£ s. d. 41 5 2	£ s. d. 31 0 4	£ s. d. 26 10 11	£ s. d. 33 14 0	£ s. d. 34 5 6	£ s. d. 35 1 8	£ s. d. 30 11 11	£ s. d. 28 4 3

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No. 19.—*Value of Exports from Western Australia in each Year since 1895.*

Exports to	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.
	£	£	£	£	£	£	£	£	£	£
United Kingdom	328,125	508,755	1,786,205	2,293,652	3,774,247	4,268,419	5,625,459	4,364,910	4,071,968	4,440,817
Commonwealth of Australia	982,018	962,959	1,979,163	2,462,656	2,937,431	1,125,031	574,622	798,750	866,607	339,057
New Zealand	...	...	1,055	305	143	307	9,793	5,415	33,956	24,695
Other British Possessions ...	50,839	120,026	158,457	138,692	191,554	1,214,756	1,987,702	3,285,111	5,073,844	5,025,742
Total, British ...	1,310,982	1,591,740	3,874,880	4,895,305	6,903,375	6,608,513	8,197,576	8,454,186	10,046,375	9,850,311
Foreign Countries	21,572	58,486	65,218	64,701	82,267	243,541	318,047	597,172	278,357	421,178
Grand Total	1,332,554	1,650,226	3,940,098	4,960,006	6,985,642	6,852,054	8,515,623	9,051,358	10,324,732	10,271,489
Value of Exports per head of Mean Population ...	£ s. d. 14 15 8	£ s. d. 13 9 0	£ s. d. 25 6 7	£ s. d. 29 7 0	£ s. d. 41 9 0	£ s. d. 38 14 8	£ s. d. 45 4 5	£ s. d. 43 19 10	£ s. d. 46 13 2	£ s. d. 43 8 7

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No. 20.—*Total Trade (Value of Imports and Exports combined) of Western Australia in each Year since 1895.*

Total Trade with	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.
	£	£	£	£	£	£	£	£	£	£
United Kingdom	1,271,602	2,566,390	4,360,291	4,345,524	5,324,276	6,494,165	8,191,621	7,715,554	6,671,110	7,006,119
Commonwealth of Australia	3,633,815	5,047,944	5,234,415	5,197,316	5,241,275	3,800,187	3,133,642	2,845,451	3,407,975	3,009,581
New Zealand	745	20,157	23,103	9,406	8,656	68,653	133,965	279,717	197,337	90,819
Other British Possessions	142,901	323,451	368,557	303,815	354,744	1,494,349	2,233,234	3,468,778	5,225,847	5,193,031
Total, British ...	5,049,063	7,957,942	9,986,366	9,856,061	10,928,951	11,857,354	13,692,462	14,309,500	15,502,269	15,299,553
Foreign Countries... ...	58,442	185,841	372,297	345,910	530,223	956,878	1,277,332	1,960,210	1,592,385	1,644,416
Grand Total ...	5,107,505	8,143,783	10,358,663	10,201,971	11,459,174	12,814,232	14,969,794	16,269,710	17,094,654	16,943,969
Value of Total Trade per head of Mean Population	£ s. d. 56 13 2	£ s. d. 66 7 6	£ s. d. 66 11 9	£ s. d. 60 7 4	£ s. d. 67 19 11	£ s. d. 72 8 8	£ s. d. 79 9 11	£ s. d. 79 1 6	£ s. d. 77 5 1	£ s. d. 71 12 10

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NO. 21.—*Value of Imports, Exports, and Total Trade of the various Ports of Western Australia, 1904, and nine months ended 30th September, 1905.*

All figures in heavy type are preliminary figures, liable to revision.

Ports.	1904.			September, 1905.			Nine months ended 30th September, 1905.		
	Value of Imports.	*Value of Exports.	Value of Total Trade.	Value of Imports.	*Value of Exports.	Value of Total Trade.	Value of Imports.	*Value of Exports.	Value of Total Trade.
	£	£	£	£	£	£	£	£	£
Fremantle	4,626,235	8,992,281	13,618,516	**370,188**	**590,705**	**960,893**	**3,193,422**	**5,035,623**	**9,537,759**
Perth	1,613,148	517	1,613,665	**162,092**		**162,092**	**1,308,714**		
Albany	154,169	95,647	249,816	**12,147**	**19,440**	**31,587**	**114,497**	**398,119**	**512,616**
Geraldton	121,341	76,204	197,545	**11,478**	**7,024**	**18,502**	**91,469**	**49,805**	**141,274**
Bunbury	60,917	366,879	427,796	**3,217**	**43,307**	**46,524**	**42,003**	**344,133**	**386,136**
Broome	49,284	140,423	189,707	**4,561**	**15,285**	**19,786**	**33,054**	**87,436**	**120,490**
Cossack	5,475	38,827	44,302	**294**	**21,961**	**22,255**	**2,477**	**23,986**	**26,463**
Vasse and Hamelin ...	5,347	29,749	35,096	**528**	...	**528**	**3,313**	**34,562**	**37,875**
Carnarvon	6,033	69,820	75,853	**611**	**21,036**	**21,647**	**6,115**	**31,583**	**37,698**
Port Hedland	6,485	17,044	23,529	**1,441**	**10,211**	**11,652**	**7,020**	**26,105**	**33,125**
Derby	4,202	39,252	43,454	**79**	**7,502**	**7,581**	**3,078**	**33,137**	**36,215**
Onslow	4,442	45,635	50,077	**312**	**3,789**	**4,101**	**4,068**	**17,541**	**21,609**
Esperance	12,758	154	12,912	**81**	...	**81**	**10,425**	...	**10,425**
Eucla	†	†	†	†	†	†	†	†	†
Wyndham	2,498	...	2,498	**522**	...	**522**	**3 708**	...	**3,708**
Dongara...	146	...	146	...	...	...	...	...	...
TOTAL	6,672,480	9,912,432	16,584,912	**567,491**	**740,260**	**1,307,751**	**4,823,363**	**6,082,030**	**10,905,393**

* These export figures refer to exports to places beyond the Commonwealth only. Detailed values of exports to other States of the Commonwealth are not yet available. † Included with Fremantle Returns.

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No. 22.—*Value of the Imports of Western Australia in each year since 1895, distinguishing the more important articles or groups of articles.*

Articles.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.
	£	£	£	£	£	£	£	£	£	£
Coin and Bullion	998,770	981,089	68,050	135,719	5,933	4,138	26,073	17,340	92	2,000
Meat and Fish (fresh and preserved)	64,434	119,867	114,184	96,296	93,947	113,748	118,833	146,263	212,401	219,674
Spirits, Beer, and Wine *	179,431	310,684	342,870	228,718	171,676	236,783	219,780	289,271	236,384	236,412
Tobacco, Cigars, and Cigarettes	53,545	93,809	101,617	89,470	86,270	96,423	101,263	119,527	167,167	137,385
Live Cattle, Sheep, Horses, and Pigs	116,961	200,361	270,637	257,608	193,012	225,891	251,780	277,591	263,895	217,608
Bacon, Hams, Tongues, Butter, Cheese, Eggs, and Tinned Milk	171,690	329,569	423,026	430,672	407,434	481,092	524,114	650,684	631,278	607,677
Sugar	54,239	92,685	105,366	111,085	112,745	128,889	132,539	143,758	159,930	187,517
Wearing Apparel, Drapery, Piece Goods, Hats and Bonnets, Blankets, Boots and Shoes, Sewing Silks and Cottons	435,412	649,936	763,329	609,442	544,334	792,690	777,192	996,276	940,938	957,340
Timber, Cement, and Furniture	83,541	223,758	254,240	107,393	85,254	102,181	232,183	173,344	209,895	266,440
Ammunition and Explosives	32,722	86,737	92,389	85,684	96,262	157,556	153,271	190,027	194,370	199,740
Oils	26,066	48,181	61,132	51,872	70,774	93,865	122,435	81,494	101,009	104,114
Machines, Machinery, Pumps, Apparatus for raising water, and Tools	263,547	672,657	500,998	506,276	506,338	657,346	643,116	796,753	884,257	611,387
Iron, Steel, Ironmongery, Metal, and Metalware, Cutlery, Hardware, Nails, Screws, etc.	176,385	433,877	479,226	384,502	421,415	700,859	610,386	609,545	712,978	770,368
Wheat, Flour, Oats, Oatmeal, Malt, Bran and Pollard, Potatoes and Onions	253,208	434,283	502,542	454,508	288,913	269,170	382,362	446,548	441,241	282,049
Jams, Jellies, and Fruits	60,515	100,901	122,708	107,726	112,533	119,397	117,920	119,797	127,364	155,288
Tea	36,440	59,957	56,174	65,417	65,237	70,334	88,160	69,790	71,694	83,379
Coal and Coke	29,581	40,000	97,103	93,114	97,112	125,958	186,015	159,589	73,847	86,610
Paper, Books, and Stationery	51,809	84,904	99,207	94,974	78,797	106,580	108,167	133,161	156,097	172,376
Cyanide		1,280	7,531	36,773	55,849	129,964	144,819	161,191	170,646	168,084
Jewellery, Clocks and Watches, and Fancy Goods	27,310	49,779	49,328	53,675	38,313	54,916	65,406	85,216	93,204	96,066
Drugs, Chemicals, and Medicines	34,812	55,782	66,358	52,156	45,554	53,285	59,716	65,210	81,062	96,133
All other Articles	694,533	1,483,461	1,840,555	1,188,895	895,780	1,244,108	1,388,641	1,485,977	839,183	1,014,831
Total	3,774,951	6,461,557	6,418,565	5,241,965	4,478,582	5,962,178	6,454,171	7,218,352	6,769,982	6,672,460

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No. 23.—*Value of the Exports of Western Australia in each year since 1895, distinguishing the most important articles.*

All figures in heavy type are preliminary figures, liable to revision.

Period.	Gold Specie. (Including from 1899 exports of local Gold coined at Perth Mint.)*	Value of principal articles of Export, being the produce of Western Australia.								All other Articles.	Total Exports.
		† Raw Gold.	Wool.	Timber.	Hides and Skins.	Pearls and Shell.	Sandal-wood.	Copper (Ingot, Ore, and Matte).	Tin (Ingot and Ore).		
	£	£	£	£	£	£	£	£	£	£	£
1895	4,500	879,748	183,510	88,146	18,941	47,501	30,863	12,952	9,708	56,690	1,332,554
1896	92	1,068,808	267,506	116,420	18,569	50,740	65,800	100	4,338	57,853	1,650,226
1897	626,080	2,564,977	295,646	192,451	37,996	60,496	49,480	1,033	3,275	108,664	3,940,098
1898	15,000	3,990,698	287,731	326,195	60,226	99,009	31,812	4,266	2,760	142,309	4,960,006
1899	*79,692	5,451,368	423,296	553,198	82,981	110,667	29,719	41,452	23,163	190,106	6,985,642
1900	*1,750,763	3,799,116	270,718	458,461	74,902	106,607	39,038	33,937	57,050	261,462	6,852,054
1901	*2,807,841	3,941,797	378,135	572,354	86,559	130,730	73,931	110,769	52,102	361,405	8,515,623
1902	*4,149,869	3,318,958	458,078	500,533	111,456	178,699	61,771	12,904	39,398	219,692	9,051,358
1903	*4,556,192	4,061,767	443,743	619,705	128,625	224,322	37,913	37,815	52,133	162,517	10,324,732
1904	*4,563,537	3,965,095	419,395	654,949	126,272	164,505	25,417	7,859	41,042	303,418	10,271,489
Jan. 1 to Sept. 30 } 1905 §	**2,462,744**	**2,466,866**	**191,998**	**431,735**	**72,165**	**‡100,373**	**19,375**	**44,801**	...	**291,973**	**6,082,030**

* The exact amount, being Western Australian mintage, cannot be ascertained with any accuracy. † For Total Production of Gold see Table No. 24. ‡ Exclusive of value of pearls. § Exports to places beyond Commonwealth only.

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Gold Mining Statistics.

No. 24.—*Annual Gold Production of Western Australia since 1886, comprising Raw Gold entered for Export, plus Raw Gold received at the Perth Branch of the Royal Mint (from May, 1899); also amount of Dividends paid.*

Period.	Quantity of Raw Gold.				Value.	Amount of Dividend from Gold won, paid by the W.A. Gold Mining Companies.
	Exported.	Received at Perth Mint.	Total.			
	Crude ounces.	Crude ounces.	Crude ounces.	Fine ounces.	£	£
Year 1886	302	...	302	270	1,148	...
Do. 1887	4,873	...	4,873	4,359	18,517	...
Do. 1888	3,493	...	3,493	3,125	13,273	...
Do. 1889	15,493	...	15,493	13,860	58,874	...
Do. 1890	22,806	...	22,806	20,402	86,663	1,250
Do. 1891	30,311	...	30,311	27,116	115,182	5,326
Do. 1892	59,548	...	59,548	53,271	226,282	1,875
Do. 1893	110,891	...	110,891	99,203	421,386	34,350
Do. 1894	207,131	...	207,131	185,298	787,096	110,642
Do. 1895	231,513	...	231,513	207,111	879,749	82,183
Do. 1896	281,265	...	281,265	251,618	1,068,807	168,216
Do. 1897	674,994	...	674,994	603,847	2,564,977	507,732
Do. 1898	1,050,184	...	1,050,184	939,490	3,990,699	605,949
Do. 1899	1,434,570	209,307	1,643,877	1,470,605	6,246,733	2,066,015
Do. 1900	999,767	581,183	1,580,950	1,414,311	6,007,610	1,396,069
Do. 1901	1,019,109	860,281	1,879,390	1,703,416	7,235,652	1,093,605
Do. 1902	822,827	1,354,615	2,177,442	1,871,038	7,947,663	1,424,272
Do. 1903	983,687	1,452,624	2,436,311	2,064,801	8,770,720	2,024,152
Do. 1904	969,937	1,403,084	2,373,021	1,983,230	8,424,226	2,050,547
From 1886 to 31st December, 1904 ...	8,922,701	5,861,094	14,783,795	12,916,371	54,865,259	11,572,203

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Do. February, 1905	57,213	96,820	...	154,033	654,290	[illegible]
Do. March, 1905 ...	52,276	108,642	...	160,918	683,536	213,125
Do. April, 1905 ...	64,553	107,583	...	172,136	731,187	324,313
Do. May, 1905 ...	47,413	110,272	...	157,685	669,803	108,950
Do. June, 1905 ...	48,851	106,299	...	155,150	659,035	194,583
Do. July, 1905 ...	57,416	108,585	..	166,001	705,127	319,111
Do. August, 1905 ...	55,370	119,311	...	174,681	741,998	7,500
Do. September, 1905	52,589	110,708	...	163,297	693,642	254,813
Do. October, 1905 ...	47,313	113,310	...	160,623	682,283	237,813
Ten months ended 31st October, 1905 ...	550,939	1,079,037	...	1,629,976	6,923,696	1,887,533
From 1886 to 31st October, 1905 ...	...	...	...	14,546,347	61,788,955	13,459,736

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GOVERNMENT RAILWAYS.

No. 25.—*Traffic and Rolling Stock of Government Railways of Western Australia since 1896.*

Year.	Length.		Traffic.			Rolling Stock.			
	Average worked during the Year.	Open at the end of the Year.	No. of Train Miles run.	Passengers carried.	Goods carried.	Locomotives.	* Passenger Carriages.	† Wagons and Brake Vans.	Total Number.
	Miles.	Miles.	No.	No.	Tons.	No.	No.	No.	No.
Year ended 30th June, 1896	580	588	1,541,750	1,679,816	435,757	74	102	2,360	2,536
Do. do. 1897	830	970	2,537,192	3,607,486	858,748	151	224	3,485	3,860
Do. do. 1898	974	993	3,613,874	5,669,444	1,203,911	186	289	4,478	4,953
Do. do. 1899	1,270	1,355	3,257,871	5,872,200	1,148,252	231	343	4,558	5,132
Do. do. 1900	1,355	1,355	4,216,161	6,225,068	1,384,040	233	260	4,777	5,270
Do. do. 1901	1,355	1,355	4,126,202	6,823,453	1,719,720	229	258	4,819	5,306
Do. do. 1902	1,356	1,360	4,507,919	8,158,299	2,040,092	274	260	5,285	5,819
Do. do. 1903	1,434	1,516	4,611,315	9,106,396	1,968,331	316	264	5,694	6,274
Do. do. 1904	1,535	1,541	4,594,234	10,225,976	2,281,764	329	269	5,759	6,357
Do. do. 1905	1,568	1,605	4,285,235	11,845,439	2,443,711	327	305	5,930	6,562

* Including Passenger Brake Vans up to 30th June, 1899. † Exclusive of Passenger Brake Vans up to 30th June, 1899.

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No. 26.—*Revenue and Expenditure of the Government Railways of Western Australia since 1896.*

Year ended—	Gross Earnings.						Working Expenses.				Excess of Gross Earnings over Working Expenses.			
	Passenger Fares.	Goods, Live Stock, Parcels, and Wharfage.	Miscellaneous, including Rents, Mails, etc.	Total Amount.	Per Average Mile worked.	Per Train Mile run.	Total Amount.	Per cent. of Gross Earnings.	Per Average Mile worked.	Per Train Mile run.	Amount.	Per cent. of Cost of Construction.	Per Average Mile worked.	Per Train Mile run.
	£	£	£	£	£	d.	£	%	£	d.	£	%	£	d.
30th June, 1896 ...	150,597	352,597	26,422	529,616	913	82·44	263,704	49·79	455	41·05	265,912	11·48	458	41·39
30th June, 1897 ...	303,124	572,715	39,644	915,483	1,103	86·59	577,655	63·09	696	54·64	337,828	9·04	407	31·95
30th June, 1898 ...	345,174	646,695	27,808	1,019,677	1,047	67·72	786,318	77·11	807	52·22	233,359	4·62	240	15·50
30th June, 1899 ...	312,685	655,863	36,073	1,004,620	791	74·61	712,329	70·91	561	52·48	292,291	4·55	230	21·53
30th June, 1900 ...	342,469	884,843	32,200	1,259,512	930	71·70	861,470	68·40	636	49·04	398,042	5·81	294	22·66
30th June, 1901 ...	341,479	971,318	40,907	1,353,704	999	78·74	1,044,920	77·19	771	60·78	308,784	4·35	228	17·96
30th June, 1902 ...	381,295	1,085,897	54,237	1,521,429	1,122	81·00	1,256,370	82·58	927	66·89	265,059	3·58	195	14·11
30th June, 1903 ...	380,721	1,103,052	69,712	1,553,485	1,083	80·85	1,247,873	80·33	870	64·95	305,612	3·75	213	15·90
30th June, 1904 ...	398,067	1,131,338	58,679	1,588,084	1,034	82·96	1,179,624	74·28	768	61·62	408,460	4·56	266	21·34
30th June, 1905 ...	409,226	1,133,804	67,099	1,610,129	1,027	90·18	1,256,003	78·01	801	70·34	354,126	3·61	226	19·84

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No 27.—*Cost of Construction, etc., and Financial Results of the Government Railways of Western Australia, for each Year since 1896.*

Year.	Total Cost of Construction and Equipment of Lines open for Traffic at end of period referred to.			Interest on Cost.			Excess of Gross Earnings over Working Expenses.	Net Financial Result for Year, taking Interest on Cost and Result of Working Traffic conjointly.	
	From Loan.	From other Sources.	Total.	On Loan Moneys.	On other Moneys.	Total.		Profit.	Per cent. on Cost of Construction and Equipment.
	£	£	£	£	£	£	£	£	%
Year ended 30th June, 1896	2,167,468	149,356	2,316,824	88,559	5,974	94,533	265,912	171,378	7·40 Profit.
Do. do. do. 1897	3,526,461	208,016	3,734,477	130,372	8,320	138,692	337,828	199,136	5·33 do.
Do. do. do. 1898	4,824,981	285,987	5,110,968	169,490	11,439	180,929	233,359	52,430	1·03 do.
Do. do. do. 1899	6,073,058	354,312	6,427,370	207,257	14,172	221,429	292,291	70,862	1·10 do.
Do. do. do. 1900	6,472,722	383,641	6,856,363	219,190	16,786	235,976	398,042	162,066	2·36 do.
Do. do. do. 1901	6,690,131	408,108	7,098,239	225,713	17,764	243,477	308,784	65,307	0·92 do.
Do. do. do. 1902	6,997,431	412,995	7,410,426	234,932	17,959	252,891	265,059	12,168	0·16 do.
Do. do. do. 1903	7,739,538	* 402,244	8,141,782	257,195	17,530	274,725	305,612	30,887	0·38 do.
Do. do. do. 1904	8,473,626	482,303	8,955,929	277,181	19,495	296,676	408,460	111,784	1·25 do.
Do. do. do. 1905	9,228,325	580,133	9,808,458	308,916	22,466	331,382	354,126	22,744	0·23 do.

* An amount of £29,975 has been credited to the Expenditure under this heading on account of Rolling Stock written off.

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LIVE STOCK.

No. 28.—*Number of Live Stock in Western Australia on the 31st December in each of the Nine Years 1896 to 1904.*

Year.	Horses.	Cattle.	Sheep.	Pigs.	Goats.	Camels.	Mules and Donkeys.
1896	57,527	199,793	2,248,976	31,154	4,027	3,984	104
1897	62,222	244,971	2,210,742	31,809	4,229	3,072	219
1898	63,604	269,947	2,251,548	39,433	5,215	3,197	209
1899	65,920	297,075	2,282,306	55,953	5,987	3,222	218
1900	68,253	338,590	2,434,311	61,740	7,220	3,246	332
1901	73,710	398,547	2,625,855	61,052	8,424	2,596	361
1902	80,158	437,136	2,704,880	52,883	11,522	2,314	505
1903	82,747	497,617	2,600,633	50,209	14,120	2,031	600
1904	90,225	561,490	2,853,424	70,299	17,980	1,953	840

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LAND SETTLEMENT.

No. 29.—*Land Settlement, as on the 31st December, 1904.*

Particulars.	Area.	Area.
I.—ABSOLUTELY ALIENATED:—	acres.	acres.
Area sold by public auction or other forms of direct sale, or otherwise alienated, up to 31st December, 1904	...	3,724,789
II.—IN PROCESS OF ALIENATION ON THE 31ST OF DECEMBER, 1904:—		
Midland Railway Concessions in process of alienation	2,768,810	
Free Homestead Farms	785,585	
Conditional Purchases	2,504,094	
Selections from late W.A. Land Company	60,478	
Selections under the Agricultural Lands Purchase Act	102,696	
Special Occupation Leases and Licenses	4,284	
Homestead or Grazing Leases	1,114,373	
Poison Land Leases and Licenses ...	492,719	
Immigrants' Grants	200	
Village Allotments	7	
Working Men's Blocks	273	
		7,833,519
Total area alienated or in process of alienation on the 31st December, 1904	...	11,558,308
III.—LEASES OR LICENSES IN FORCE ON 31ST DECEMBER, 1904:—		
Issued by Lands Department—		
Pastoral Leases	138,876,509	
Special Leases	848	
Leases of Reserves	981	
Selections in Goldfields	2,653	
Timber Leases and Licenses	885,140	
Residential Lots	781	
Issued by Mines Department—		
Gold Mining Leases *	32,362	
Mineral Leases	33,083	
Miners' Homestead Leases	21,610	
Other Leases	351	
		139,854,318
IV.—AREA NEITHER ALIENATED, IN PROCESS OF ALIENATION, NOR LEASED	...	473,176,174
Total Area of Western Australia ...	...	624,588,800

* Exclusive of 168 acres on "Private Property."

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No. 30.—*Principal Crown Lands Transactions.*

Area of Crown Lands for which Applications have been approved by the Lands Department.

Period.	Conditional Alienation.							Leases and Licenses.				
	Conditional Purchases.	Free Homestead Farms.	Grazing Leases.	Selections under Land Purchase Act.	Poison Land Leases.	Working men's Blocks, etc.*	Total.	Pastoral Leases and Licenses.	Special Leases.	Timber Leases.	Miscellaneous Leases.*	Total.
	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.
Year 1900	165,599	52,060	81,565	7,562	3,000	18	309,804	37,156,393	162	182,970	5,363	37,344,888
„ 1901	209,709	62,623	64,834	4,295	9,530	8	351,999	19,909,251	149	109,630	545	20,019,575
„ 1902	249,963	97,392	182,681	11,540	8,954	100	550,630	23,679,928	196	47,360	459	23,727,943
„ 1903	520,289	233,070	264,159	15,655	12.139	59	1,045,371	30,737,486	322	14,720	296	30,752,824
„ 1904	645,438	235,550	426,666	42,305	12,828	154	1,362,941	19,363,189	303	...	143	19,363,635
January, 1905 † ...	**59.074**	**18,080**	**39,504**	**3,534**	...	...	**120,192**	**758,700**	**80**	...	...	**758,780**
February, 1905 † ...	**62,677**	**10,560**	**36,645**	**4,053**	...	...	**113,935**	**740,000**	**1**	...	...	**740,001**
March, 1905 † ...	**42.893**	**16,000**	**37,245**	**4,964**	...	...	**101,102**	**1,310,950**	...	...	...	**1,310,950**
April, 1905 † ...	**47.308**	**12,127**	**31,190**	**311**	...	...	**90,936**	**820,040**	...	...	...	**820,040**
May, 1905 † ...	**89,522**	**21.220**	**40,980**	**452**	**500**	...	**152,674**	**985,348**	**1,052**	...	...	**986,400**
June, 1905 † ...	**68,766**	**18,560**	**25,342**	**525**	...	...	**113,193**	**1,210,970**	**6**	...	...	**1.210,976**
July, 1905 † ...	**67,870**	**19,620**	**5,469**	**1,650**	...	...	**94,609**	**959.860**	**5**	...	...	**959,865**
August, 1905 † ...	**88,175**	**21,440**	**7,504**	**1,458**	...	...	**118,577**	**1,193,388**	**16**	...	...	**1,193,404**
September, 1905 †	**79,149**	**20,880**	**2,528**	**879**	...	...	**103,436**	**804,916**	**3**	...	...	**804,919**
October, 1905 † ...	**83,296**	**21,080**	**9,368**	**549**	...	...	**114,293**	**958.227**	**10**	...	...	**958,237**
Ten months ended 31st October, 1905†	**688,730**	**179,567**	**235,775**	**18,375**	**500**	...	**1,122,947**	**9,742,399**	**1,173**	...	...	**9,743,572**

* Monthly details not available. † All figures in heavy type are preliminary figures liable to revision.

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AGRICULTURE.

No. 31.—*Areas under various kinds of Crops in Western Australia during each of the Nine Seasons 1896-97 to 1904-1905.*

Season ended last day of	Grain Crops.					Hay of all kinds.	Potatoes.	Root Crops.		Other Crops.	Vineyards.	Orchards.	Total Area under Crop.
	Wheat.	Maize.	Oats.	Barley.	All other Grain Crops.			Onions.	All other Root Crops.				
	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.
February, 1897 ...	31,489	30	1,753	1,903	340	69,437	720	59	134	1,186	2,294	2,393	111,738
Do 1898 ...	38,706	243	1,678	1,694	428	80,939	1,361	54	133	2,370	2,654	2,923	133,183
Do. 1899 ...	75,032	110	3,072	2,186	700	79,223	1,675	96	128	2,916	2,961	3,678	171,777
Do. 1900 ...	84,462	133	3,940	3,885	921	78,893	2,837	137	157	3,292	3,245	4,465	186,367
Do. 1901 ...	74,308	91	4,790	2,536	844	104,254	1,794	73	172	3,855	3,325	5,296	201,338
Do. 1902 ...	94,709	512	9,751	2,669	719	92,654	1,829	164	129	4,600	3,629	6,076	217,441
Do. 1903 ...	92,398	109	10,334	3,783	868	105,791	2,084	88	130	4,007	3,528	6,872	229,992
Do. 1904 ...	137,946	163	14,568	3,609	1,038	109,002	1,823	93	144	4,104	3,324	7,938	283,752
Do. 1905 ...	182,080	86	13,864	3,251	1,126	105,247	1,906	66	173	6,423	3,413	9,756	327,391

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No. 32.—*Total Yield of the Principal Crops and quantity of Wine made in Western Australia for each of the Nine Seasons 1896-97 to 1904-1905.*

Season ended last day of	Grain Crops.						Hay of all kinds.	Potatoes.	Root Crops.		Wine.
	Wheat.	Maize.	Oats.	Barley.	Rye.	Dry Peas and Beans.			Onions.	All other Root Crops.	
	bushels.	bushels.	bushels.	bushels.	bushels.	bushels.	tons.	tons.	tons.	tons.	gallons.
February, 1897	243,928	504	18,871	12,816	*	*	50,500	2,089	144	228	75,693
Do. 1898	408,595	4,826	29,266	23,423	2,917	1,816	75,464	4,270	152	371	89,099
Do. 1899	870,909	1,365	55,854	29,295	4,812	2,912	77,297	5,698	245	457	113,799
Do. 1900	966,601	2,263	73,556	56,587	4,748	4,742	70,078	8,373	349	1,000	86,802
Do. 1901	774,653	1,399	86,433	29,188	3,979	3,679	103,813	4,836	190	737	130,377
Do. 1902	956,886	5,203	163,654	34,723	2,933	3,905	89,729	5,739	377	390	185,735
Do. 1903	985,559	2,110	167,882	46,255	4,419	5,557	94,007	6,488	237	674	158,853
Do. 1904	1,876,252	2,487	258,503	53,227	3,970	7,342	121,934	4,542	342	743	138,371
Do. 1905	2,013,237	896	226,318	37,332	4,541	8,523	113,794	5,614	246	1,002	185,070

* No information available.

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No. 33.—*Average Yield per Acre of the Principal Crops in Western Australia for each of the Nine Seasons 1896-97 to 1904-1905.*

Season ended last day of	Grain Crops.						Hay of all kinds.	Potatoes.	Root Crops.	
	Wheat.	Maize.	Oats.	Barley.	Rye.	Dry Peas and Beans.			Onions.	All other Root Crops.
	bush. per acre.	bush. per acre.	bush. per acre.	bush. per acre.	bush. per acre.	bush. per acre.	tons per acre.	tons per acre.	tons per acre.	tons per acre.
February 1897	7·75	16·66	10·76	6·73	*	*	0·73	2·90	2·42	1·71
Do. 1898	10·56	19·84	17·44	13·83	8·51	21·36	0·93	3·14	2·80	2·78
Do. 1899	11·61	12·38	18·18	13·40	9·36	15·16	0·98	3·40	2·56	3·57
Do. 1900	11·44	17·02	18·67	14·57	8·74	12·54	0·89	2·95	2·55	6·37
Do. 1901	10·42	15·37	18·04	11·51	8·34	10·02	1·00	2·70	2·60	4·28
Do. 1902	10·10	10·16	16·78	13·01	7·94	11·19	0·97	3·14	2·30	3·02
Do. 1903	10·67	19·36	16·25	12·23	9·54	13·72	0·89	3·11	2·69	5·18
Do. 1904	13·60	15·26	17·74	14·75	8·92	12·38	1·12	2·49	3·68	5·16
Do. 1905	11·06	10·42	16·32	11·48	10·16	12·55	1·08	2·95	3·73	5·79

* No information available.

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No. 34.—*Number of Industrial Establishments (exclusive of Mines) in Western Australia from which returns were received under the provisions of the Industrial Statistics Act, and the number of Males and Females employed in such Establishments for each of the Two years 1903 and 1904.*

NOTE The Industrial Establishments here dealt with are those which come under the definition given in the Industrial Statistics Act, each being a "factory, workshop, or mill, where either four persons or more have been employed at any one time during the year, or where an engine driven by steam, gas, oil, or electricity has been used, whatever be the number of persons employed."

Class of Industry.		1903.				1904.			
		No. of Establishments.	* Persons employed.			No. of Establishments.	* Persons employed.		
			Males.	Females.	Total.		Males.	Females.	Total.
I. Treating Raw Material, the product of pastoral pursuits, or Vegetable Products not otherwise specified	a. Animal Products ...	5	69	...	69	6	77	1	78
	b. Vegetable Products ...	5	37	...	37	10	108	...	108
II. Oil and Fats, Animal and Vegetable		5	67	...	67	4	74	...	74
III. Processes relating to Stone, Clay, Glass, etc. ...		49	699	1	700	48	725	2	727
IV. Working in Wood		59	3,563	3	3,566	73	3,334	6	3,340
V. Metal Works, Machinery, etc.		53	2,053	12	2,065	64	2,483	13	2,496
VI. Connected with Food and Drink or the preparation thereof	a. Animal Food ...	† 24	242	83	325	2	8	...	8
	b. Vegetable Food					26	286	93	379
	c. Drink and Stimulants	105	871	7	878	115	930	5	935
	d. Narcotics ...	4	67	39	106	2	9	9	18
VII. Clothing and Textile Fabrics and Fibrous Materials	a. Dress	111	581	1,075	1,656	131	624	1,246	1,870
	b. Fibrous Materials and Textiles not elsewhere included	3	13	4	17	4	13	9	22

* Including Working Proprietors, Managers, and Overseers, but not persons employed in their own homes working for establishments. † These particulars have been combined in order to conceal the contents of individual schedules, in compliance with the provisions of Section 18 of "The Industrial Statistics Act, 1897."

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No. 34.—*Number of Industrial Establishments (exclusive of Mines) in Western Australia, etc.*—continued.

Class of Industry.	1903.				1904.			
	No. of Establishments.	* Persons employed.			No. of Establishments.	* Persons employed.		
		Males.	Females.	Total.		Males.	Females.	Total.
VIII. Books, Paper, Printing, Engraving	47	845	120	965	57	966	131	1,097
XI. Vehicles and Fittings, Saddlery, Harness, etc.	56	507	2	509	59	531	4	535
XII. Shipbuildings, Fittings, etc.	8	94	...	94	7	49	...	49
XIII. Furniture, Bedding, etc.	21	294	11	305	25	313	16	329
XIV. Drugs, Chemicals, and By-Products	7	34	20	54	6	29	23	52
XV. Surgical and Scientific Appliances	‡ 1	8	...	8	‡ 1	8	...	8
XVI. Timepieces, Jewellery, and Platedware	4	33	...	33	6	46	...	46
XVII. Heat, Light, and Energy	15	310	1	311	19	400	1	401
XVIII. Leatherware (excepting Harness and Saddlery)	† 4	32	7	39	2	11	4	15
XIX. Miscellaneous					5	50	9	59
XX. Supplementary §	107	640	14	654	121	764	17	781
Total	693	11,059	1,399	12,458	793	11,838	1,589	13,427

* Including Working Proprietors, Managers, and Overseers, but not persons employed in their own homes working for establishments. † These particulars have been combined in order to conceal the contents of individual schedules, in compliance with the provisions of Section 18 of "The Industrial Statistics Act, 1897." ‡ Written consent of head of establishment obtained in accordance with Section 18 of "The Industrial Statistics Act, 1897." § The establishments contained in this class are those which come under the definition of Industrial Establishments according to "The Industrial Statistics Act, 1897," but which were excluded from the scheme of classification given in the foregoing 19 classes and adopted by the 1902 Conference of Statisticians held at Hobart.

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No. 35.—*Output of the principal Manufacturing Establishments of Western Australia during the Years 1897 to 1904.*

Factories, etc.	Articles, etc., Produced or Treated.		1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.
Tanneries	Hides tanned	number	13,020	11,620	10,200	11,195	12,852	10,730	16,280	19,267
	Skins tanned	number	*	7,000	6,632	9,810	11,450	6,100	38,800	8,636
Soap and Candle Works	Soap made	cwt.	19,175	20,381	21,460	24,520	20,315	22,762	27,232	27,584
	Candles made	lbs.	765,135	1,169,475	1,881,600	1,828,499	1,737,292	1,866,725	1,789,106	1,969,610
Brickworks	Bricks made	number	36,564,400	26,810,900	18,564,710	25,234,084	30,160,162	37,721,897	45,576,179	50,332,190
Lime Works	Lime Burned	bags	*	*	*	*	*	160,522	219,879	214,799
Forest Saw Mills	Timber Sawn or Hewn	super. feet	85,052,976	103,042,991	118,051,861	112,693,000	122,413,865	124,005,065	126,729,833	143,504,953
Flour Mills	Wheat ground	bushels	365,942	438,265	490,035	626,042	493,263	576,781	685,652	1,004,408
	Flour made	tons	7,314	8,460	10,042	12,539	10,278	11,840	13,711	20,185
Aerated Water and Cordial Factories	Aerated Waters made	dozens	1,061,178	890,135	1,085,922	1,201,029	1,084,852	1,229,786	1,211,701	1,377,064
	Cordials made	dozens	19,499	15,892	16,163	29,875	17,307	16,027	14,136	17,859
Breweries	Beer and Stout made	gallons	2,817,982	3,278,008	3,373,642	4,015,490	4,225,037	4,780,058	4,943,450	5,404,474
Tobacco and Cigar Factories	Tobacco made	lbs.	83,600	67,477	78,155	100,448	115,855	94,393	61,404	
	Cigars made	number	840,400	583,275	694,650	1,045,900	1,140,611	1,054,975	902,700	649,700
		lbs.	7,826	6,985	8,712	13,063	14,263	13,832	11,672	8,757
	Cigarettes made	number	2,909,000	585,000	1,056,000	1,588,000	4,206,000	2,804,000	215,000	...
		lbs.	6,545	1,316	2,640	4,367	10,500	6,758	479	...
Boot Factories	Boots and Shoes made	pairs	171,307	207,957	217,416	249,786	264,768	212,768	221,775	223,092
Gas Works	Gas supplied	cubic feet	52,810,290	56,988,680	48,806,400	59,977,130	52,203,900	52,423,870	54,434,300	58,561,000

* No information available.

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METEOROLOGICAL STATISTICS.

No. 36.—*Abstract of Meteorological Observations taken at Perth Observatory.*

Latitude, 31° 57′ S. Altitude above mean sea level, 197 feet. Longitude, 115° 51′ E.

Period.	Barometer corrected to 32° Fahrenheit and Mean Sea Level.				Thermometers in the Shade.									
	Average for 8 years 1897-1904.	Year 1905.			Average for 8 years, 1897-1904.	Year 1905.					Highest recorded since 1st January, 1897.		Lowest recorded since 1st January, 1897.	
	Mean.	Mean.	Highest.	Lowest.	Mean.	Mean.	Mean maximum.	Mean minimum.	Max.	Min.	Max.	Date.	Min.	Date.
January	29·95	29·99	30·15	29·82	74	70	80	60	97	51	107	16-1-97	51	25-1-01
February	·96	30·03	·37	·73	74	73	84	62	99	53	107	6-2-98	48	1-2-02
March	30·02	·10	·30	·93	71	70	81	57	94	49	104	10-3-02	46	8-3-03
April	·10	·10	·42	·74	66	67	76	57	89	46	97	10-4-99	42	2-4-01
May	·15	29·93	·29	·50	60	62	68	56	78	46	82	9-5-99	40	17-5-99
June	·07	30·18	·46	·63	56	56	64	48	73	39	73	16-6-99	37	14-6-98
July	·15	·16	·57	·45	55	55	63	47	74	39	74	24-7-99	38	5-7-04
August	·13	·20	·53	·51	56	54	62	46	72	39	80	30-8-02	38	11-8-97
September	·10	·08	·46	·49	58	57	66	49	76	42	86	28-9-00	39	18-9-00
October	·04	·1	·46	·70	61	61	71	52	84	45	90	25-10-03	41	10-10-03
November	·03	...	...	...	66	...	...	...	...	...	101	27-11-01	42	1-11-04
December	29·97	...	...	...	70	...	...	...	...	...	108	20-12-04	49	1-12-97
Year ended 31st Dec.	30·05	...	...	...	64	...	...	...	...	...	108	20-12-04	37	14-6-98

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No. 36.—*Abstract of Meteorological Observations taken at Perth Observatory*—continued.

Period.	Mean humidity. Year 1905.	Rain. Average for 29 years 1876-1904. Rain (100=1in.).	Rain. Average for 29 years 1876-1904. No. of wet days.	Rain. Year 1905. Rain (100=1in.).	Rain. Year 1905. No. of wet days.
January	62	33	2	16	2
February	52	36	2	2	2
March	56	80	4	29	5
April	60	178	7	164	5
May	71	471	13	871	23
June	70	659	17	467	12
July	74	604	16	683	19
August	71	571	17	350	16
September	65	318	14	575	14
October	59	212	11	158	*5
November	...	80	5	...	...
December	...	63	4	...	...
Year ended 31st Dec.	...	3305	112	...	...

* The rainfall for the present year, up to 31st October, was 3315 points, distributed over 103 days, as compared with an average of 3162 points on 103 days for corresponding period of previous 29 years.

No. 37—*Average Rainfall in Land Divisions to end of 1904.*

Land Divisions.	Rain (100=1in.). Range.	Rain (100=1in.). Average.	Periods of observations. Range.	Periods of observations. Average.
			years.	years.
Kimberley Land Division	3472 to 1999	2438	5 to 19	11
North-West do. do.	1805 to 834	1279	5 to 23	12
Gascoyne do. do.	1382 to 665	880	5 to 22	12
Eastern do. do.	1267 to 812	979	5 to 18	9
South-Western do. do.	3912 to 1081	2232	5 to 29	19
Eucla do. do.	2307 to 987	1434	6 to 21	17

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Parliamentary Rolls.

No. 38.—*Return for each Electoral District of the number of Names on the Roll of the Legislative Assembly in June, 1905.*

Electoral District.	Number of Names on the Roll.			Electoral District.	Number of Names on the Roll.		
	Male.	Female.	Total.		Male.	Female.	Total.
Albany	1,552	1,141	2,693	Katanning	755	393	1,148
Balkatta	1,258	1,202	2,460	Kimberley	988	136	1,124
Beverley	1,005	414	1,419	Menzies	1,712	550	2,262
Boulder	1,510	1,214	2,724	Mount Leonora	3,400	609	4,009
Brown Hill	1,748	988	2,736	Mount Magnet	1,330	320	1,650
Bunbury	1,419	1,118	2,537	Mount Margaret	3,970	659	4,629
Canning	1,520	1,015	2,535	Murchison	1,776	184	1,960
Claremont	1,602	1,523	3,125	Murray	913	502	1,415
Collie	1,560	649	2,209	Nelson	945	415	1,360
Coolgardie	1,857	1,012	2,869	Northam	2,253	1,101	3,354
Cue	1,714	475	2,189	Perth	984	687	1,671
Dundas	1,260	424	1,684	Perth, East	1,800	1,676	3,476
Forrest	1,103	390	1,493	Perth, North	2,601	2,338	4,939
Fremantle	1,184	901	2,085	Perth, West	1,942	2,007	3,949
Fremantle, East	1,319	1,237	2,556	Pilbara	1,161	53	1,214
Fremantle, North	1,133	944	2,077	Roebourne	587	81	668
Fremantle, South	2,110	1,720	3,830	Subiaco	1,785	1,587	3,372
Gascoyne	464	109	573	Sussex	545	373	918
Geraldton	831	644	1,475	Swan	1,739	705	2,444
Greenough	798	438	1,236	Toodyay	697	401	1,098
Guildford	2,013	1,307	3,320	Wellington	1,144	585	1,729
Hannans	2,330	1,510	3,840	Williams	1,482	612	2,094
Irwin	936	492	1,428	Yilgarn	1,583	543	2,126
Ivanhoe	2,256	1,163	3,419	York	662	435	1,097
Kalgoorlie	1,770	1,336	3,106				
Kanowna	2,323	639	2,962	Total	75,329	40,957	116,286

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No. 39.—*Return for each Electoral Province of the Number of Names on the Roll of the Legislative Council in June, 1905.*

Electoral Province.	Number of Names on the Roll.		
	Males.	Females.	Total.
Central	1,712	196	1,908
East	2,492	321	2,813
Metropolitan	4,618	1,081	5,699
Metropolitan-Suburban	4,133	868	5,001
North	537	40	577
North-East	3,755	427	4,182
South	4,237	637	4,874
South-East	1,714	151	1,865
South-West	2,106	358	2,464
West	3,834	728	4,562
Total	29,138	4,807	33,945

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No. 40.—*Comparative Statement showing the Areas actually laid down with Wheat and Oats for Grain and Hay during last season (1904-1905), and those estimated to have been laid down during the present season (1905-1906).*

Magisterial and Police Districts.	Estimated Area laid down, Season 1905-1906.						Area actually laid down, Season 1904-1905.						Increase or Decrease for present Season (1905-1906). a Denotes Decrease.					
	Wheat.			Oats.			Wheat.			Oats.			Wheat.			Oats.		
	Total Area.	For Grain.	For Hay.	Total Area.	For Grain.	For Hay.	Total Area.	For Grain.	For Hay.	Total Area.	For Grain.	For Hay.	Total Area.	For Grain.	For Hay.	Total Area.	For Grain.	For Hay.
	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.
SOUTH-WESTERN PORTION.																		
Northampton—																		
Northampton	5,283	2,931	2,352	791	343	448	4,201	2,183	2,018	501	180	321	1,082	748	334	290	163	127
Mt. Wittenoom	...	...	..	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...
Total Northampton ...	5,283	2,931	2,352	791	343	448	4,201	2,183	2,018	501	180	321	1,082	748	334	290	163	127
Victoria—																		
Geraldton	3,665	1,492	2,173	1,065	198	867	3,634	1,300	2,334	682	104	578	31	192	a161	383	94	289
Greenough	10,360	5,391	4,969	917	324	593	8,799	5,004	3,795	814	158	656	1,561	387	1,174	103	166	a63
Dongara	2,013	1,328	685	88	75	13	5,714	3,967	1,747	418	315	103	a3,701	a2,639	a1,062	a330	a240	a90
Mullewa	88	68	..	20	...	20	20	...	20	40	...	40	68	88	a20	a20	..	a20
Mingenew	1,192	905	287	100	36	64	1,197	928	269	134	73	61	a5	a23	18	a34	a37	3
Total Victoria	17,318	9,204	8,114	2,190	633	1,557	19,364	11,199	8,165	2,088	650	1,438	a2,046	a1,995	a51	102	a17	119
Swan—																		
Guildford Municipality							12		12	1	..	1	a12	...	a12	a1	..	a1
Guildford	518	93	425	725	34	691	302	54	248	995	27	968	216	39	177	a270	7	a277
Midland Junction ...	549	151	398	965	91	874	538	252	286	1,167	101	1,066	11	a101	112	a202	a10	a192
Mundaring ...	163	39	124	105	16	89	310	147	163	139	3	136	a147	a108	a39	a34	13	a47
Gingin ...	2,131	1,560	571	1,770	336	1,434	2,914	2,060	845	2,081	506	1,575	a783	a479	a304	a311	a170	a141
Moora	5,150	3,374	1,776	1,189	619	570	5,348	3,035	2,313	691	368	323	a198	339	a537	498	251	247
Victoria Park (part of)													...	...				
North Perth and Bayswater (part of)							8	8		..		.	a8	a8	...			
Total Swan	8,511	5,247	3,264	4,754	1,096	3,658	9,432	5,565	3,867	5,074	1,005	4,069	a921	a318	a603	a320	91	a411

Total Northam	81,734	49,891	31,843	6,529	4,477	2,052	81,202	51,466	29,736	5,122	3,699	1,423	532	a1,575	2,107	1,407	778	629
York—																		
York	34,521	24,725	9,796	2,132	1,683	449	33,455	24,024	9,431	1,467	1,194	273	1,066	701	365	665	489	176
Beverley	25,436	19,621	5,815	1,519	1,167	352	21,744	16,997	4,747	769	676	93	3,692	2,624	1,068	750	491	259
Pingelly	14,890	11,952	2,938	859	562	297	11,867	9,685	2,182	696	383	313	3,023	2,267	756	163	179	a16
Total York	74,847	56,298	18,549	5,410	3,412	1,098	67,066	50,706	16,360	2,932	2,253	679	7,781	5,592	2,189	1,578	1,159	419
Perth—																		
Metropolitan	..	..	...	..	..	...	..	...	...	...	...	...	...	..	...	..	..	...
West Perth	..	..	...	..	..	..	..	...	...	...	...	...	...	..				...
Subiaco	3	..	3	13	..	13	11		11	28	4	24	a8	...	a8	a15	a4	a11
Leederville	..	..	...	..	...	..	..		...	...	...	...	...	...				
North Perth and Bayswater (part of)	...		...	5	...	5	3		3	3	...	3	a3	...	a3	2		2
Highgate Hill	...	..	..	..	...	..	..		..	...	...	...	...	...				
Victoria Park (part of)	16	...	16	24	..	24	4	..	4	37	...	37	12	...	12	a13	...	a13
Wanneroo	..	..	..	4	..	4	..	...	..	...	...	...	...	...		4		4
Kelmscott	269	72	197	187	28	159	340	29	311	489	41	448	a71	43	a114	a342	a13	a299
Claremont	...	..	...	1		1	3	..	3	...	...	...	a3	...	a3	1		1
Cottesloe	..									...	...	...	...	...				
Causeway		..	...	..			..	..	..	...	...	...	...	...				
South Perth	..			..	...		...			...	...	...	...	...	...			
Total Perth	288	72	216	234	28	206	361	29	332	557	45	512	a73	43	a116	a323	a17	a306
Fremantle—																		
Beaconsfield	17	..	17	24	...	24	2	..	2	33	...	33	15	...	15	a9	...	a9
North Fremantle	..	..									...	...	...	...	...	...	...	...
Rockingham	43	8	35	118	5	113	9	..	9	133	...	133	34	8	26	a15	5	a20
Fremantle	79	2	77	122	..	122	29		29	143	...	143	50	2	48	a21	...	a21
Total Fremantle	139	10	129	264	5	259	40	..	40	309	...	309	99	10	89	a45	5	a50
Murray—																		
Pinjarra	409	114	295	829	60	769	252	93	159	1,274	70	1,204	157	21	136	a445	a10	a435
Jarrahdale	156	45	111	398		398	290	32	258	449	...	449	a134	13	a147	a63	...	a63
Waroona	182	43	139	647	17	630	251	67	184	870	42	828	a69	a24	a45	a223	a25	a198
No. 6 Mill, Jarrahdale	..	...	...	...	...	..	...	..	..	...	...	...	...	...	...	...		
Total Murray	747	202	545	1,862	77	1,785	793	192	601	2,593	112	2,481	a46	10	a56	a731	a35	a696

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Comparative Statement showing the Areas actually laid down with Wheat and Oats for Grain and Hay, etc.—continued.

Magisterial and Police Districts.	Estimated Area laid down, Season 1905-1906.						Areas actually laid down, Season 1904-1905.						Increase or Decrease for present Season 1905-1906. a Denotes Decrease.					
	Wheat.			Oats.			Wheat.			Oats.			Wheat.			Oats.		
	Total Area.	For Grain.	For Hay.	Total Area.	For Grain.	For Hay.	Total Area.	For Grain.	For Hay.	Total Area.	For Grain.	For Hay.	Total Area.	For Grain.	For Hay.	Total Area.	For Grain.	For Hay.
	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.
Wellington—																		
Bunbury	902	425	477	2,949	286	2,663	724	316	408	3,094	242	2,852	178	109	69	a145	44	a189
Yarloop	151	53	98	668	51	617	263	46	217	990	25	965	a112	7	a119	a322	26	a348
Collie (part of)	48	24	24	37	...	37	32	23	9	25	10	15	16	1	15	12	a10	22
Donnybrook (part of) ...	83	45	38	351	10	341	94	54	40	666	21	645	a11	a9	a2	a315	a11	a304
Total Wellington ...	1,184	547	637	4,005	347	3,658	1,113	439	674	4,775	298	4,477	71	108	a37	a770	49	a819
Collie—																		
Collie (part of)	49	...	49	78	...	78	28	...	28	148	...	148	21	...	21	a70	...	a70
Williams—																		
Williams	3,380	1,971	1,409	646	352	294	3,706	2,031	1,675	305	154	151	a326	a60	a266	341	198	143
Narrogin	15,292	11,410	3,882	1,635	1,032	603	14,209	11,217	2,992	799	380	419	1,083	193	890	836	652	184
Total Williams	18,672	13,381	5,291	2,281	1,384	897	17,915	13,248	4,667	1,104	534	570	757	133	624	1,177	850	327
Katanning—																		
Katanning	26,322	21,163	5,159	4,315	2,243	2,072	28,663	23,590	5,073	3,628	2,041	1,587	a2,341	a2,427	86	687	202	485
Wagin	20,140	16,176	2,964	3,123	1,593	1,530	17,686	14,922	2,764	2,682	1,474	1,208	2,454	1,254	1,200	441	119	322
Broomehill	7,208	5,270	1,938	1,209	351	858	7,577	5,270	2,307	1,546	524	1,022	a369		a369	a337	a173	a164
Kojonup	1,912	1,312	600	756	413	343	2,681	2,117	564	1,033	472	561	a769	a805	36	a277	a59	a218
Total Katanning ..	55,582	43,921	11,661	9,403	4,600	4,803	56,607	45,899	10,708	8,889	4,511	4,378	a1,025	a1,978	953	514	89	425
Blackwood—																		
Bridgetown	544	243	301	1,114	210	904	715	462	253	1,340	327	1,013	a171	a219	48	a226	a117	a109
Donnybrook (part of)	30	3	27	426	136	290	37	24	13	490	107	383	a7	a21	14	a64	29	a93
Greenbushes (part of) ...	97		97	306		306	129	24	105	471	12	459	a32	a24	a8	a165	a12	a153
Total Blackwood	671	246	425	1,846	346	1,500	881	510	371	2,301	446	1,855	a210	a264	54	a455	a100	a355

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Sussex—																		
Busselton	232	91	141	567	18	549	209	81	128	629	22	607	23	10	13	a62	a4	a58
Hamelin	2	...	2	105	2	103	...	...		5		5	2	...	2	100	2	98
Greenbushes (part of)	11	1	10	11	..	11	1		1	16		16	10	1	9	a5	...	a5
Total Sussex	245	92	153	683	20	663	210	81	129	650	22	628	35	11	24	33	a2	35
Plantagenet																		
Albany	139	28	111	80	10	70	98	25	73	59		59	41	3	38	21	10	11
Mount Barker	927	404	523	354	65	289	1,056	474	582	399	109	290	a129	a70	a59	a45	a44	a1
Total Plantagenet	1,066	432	634	434	75	359	1,154	499	655	458	109	349	a98	a67	a21	a24	a34	10
Phillips River																		
Ravensthorpe	475	30	445	256	5	251	467	55	412	215		215	8	a25	33	41	5	36
Dundas																		
Dundas	729	30	699	23	12	11	740		740				a11	30	a41	23	12	11
Esperance																		
Esperance	177	45	132	16	1	15	185	3	182	31		31	a8	42	a50	a15	1	a16
GRAND TOTAL, WESTERN AUSTRALIA	267,717	182,579	85,138	40,150	16,861	23,288	261,759	182,074	79,685	37,747	13,864	23,883	5,958	505	5,453	2,412	2,997	a585

Breadstuffs Statistics on page 1249, etc.

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3.—AUSTRALASIAN STATISTICS.

POPULATION AND VITAL STATISTICS.

No. 1.—*Estimated Population of Australasian Capitals, 31st December, 1902 and 1903.*

Capital (including Suburbs).	* Latitude S.	* Longitude E.	1902.				1903.			
			Males.	Females.	Total.	Females to 100 Males.	Males.	Females.	Total.	Females to 100 males.
	° ′	° ′	No.	No.	No.	No.	No.	No.	No.	No.
Perth	31 57	115 50	22,114	20,364	42,478	92·09	24,000	22,400	46,400	93·33
Sydney	33 52	151 12	251,190	257,320	508,510	102·44	251,733	259,297	511,030	103·00
Melbourne	37 50	144 59	238,300	264,310	502,610	110·91	237,754	263,706	501,460	110·92
Brisbane	27 28	153 2	60,798	62,017	† 122,815	102·01	61,629	62,834	† 124,463	101·96
Adelaide	34 56	138 35	79,251	86,472	165,723	109·11	80,261	87,805	168,066	109·40
Hobart	42 53	147 20	16,483	18,326	34,809	111·18	16,532	18,385	34,917	111·21
Wellington	41 18	174 47	‡	‡	52,590	‡	‡	‡	53,573	‡

* Latitudes and Longitudes, except for Hobart, taken from Nautical Almanac for 1904. † Ten-mile radius. ‡ Males and females not distinguished.

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No. 2.—*Estimated Population of each State of the Commonwealth of Australia and the Colony of New Zealand on 31st December, 1902 and 1903.*

State or Colony.	Area in square miles.	Population on the 31st December.			Number of		Increase during year.			Increase per cent. during the year.		
		Males.	Females.	Total.	Females to 100 males.	Persons to the square mile	Males.	Females.	Total.	Males.	Females.	Total.
1902.	No.	No.	No.	No.			No.	No.	No.	%	%	%
Western Australia	975,920	129,386	83,941	213,327	64·88	0·22	11,145	8,073	19,218	9·43	10·64	9·90
New South Wales	310,700	740,775	666,846	1,407,621	90·02	4·53	17,740	10,350	28,090	2·45	1·58	2·04
Victoria	87,884	608,037	603,413	1,211,450	99·24	13·78	‡ 1,507	2,075	568	‡ 0·25	0·35	0·05
Queensland ...	668,497	283,195	227,658	510,853	80·39	0·76	1,536	3,373	4,909	0·55	1·50	0·97
South Australia* ...	903,690	186,054	180,606	366,660	97·07	0·41	93	834	927	0·05	0·46	0·25
Tasmania	26,215	92,236	85,229	177,465	92·40	6·77	1,893	1,192	3,085	2·10	1·42	1·77
New Zealand ...	104,751	425,908	382,021	†807,929	89·70	7·71	11,685	8,587	20,272	2·82	2·30	2·57
Total Australasia	3,077,657	2,465,591	2,229,714	4,695,305	90·43	1·53	42,585	34,484	77,069	1·76	1·57	1·67
1903.												
Western Australia	975,920	135,961	90,993	226,954	66·93	0·23	6,575	7,052	13,627	5·08	8·40	6·39
New South Wales	310,700	754,632	676,997	1,431,629	89·71	4·61	13,857	10,151	24,008	1·87	1·52	1·71
Victoria	87,884	605,361	603,493	1,208,854	99·69	13·76	‡ 2,676	80	‡ 2,596	‡ 0·44	0·01	†0·21
Queensland ...	668,497	285,297	230,233	515,530	80·70	0·77	2,102	2,575	4,677	0·74	1·13	0·92
South Australia* ...	903,690	187,153	181,670	368,823	97·07	0·41	1,099	1,064	2,163	0·59	0·59	0·59
Tasmania	26,215	93,078	86,409	179,487	92·84	6·85	842	1,180	2,022	0·91	1·38	1·14
New Zealand ...	104,751	439,674	392,831	†832,505	89·35	7·95	13,766	10,810	24,576	3·23	2·83	3·04
Total Australasia	3,077,657	2,501,156	2,262,626	4,763,782	90·46	1·55	35,565	32,912	68,477	1·44	1·48	1·46

* Including the Northern Territory. † Exclusive of Maoris and residents of Cook and other Pacific Islands. ‡ Decrease.

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No. 3.—*Estimated Mean Population for the Years 1902 and 1903.*

State or Colony.	Mean Population for the Year.			Number of Females to 100 Males.
	Males.	Females.	Total.	
1902.	No.	No.	No.	
Western Australia	125,557	80,198	205,755	63·87
New South Wales	731,232	662,390	1,393,622	90·59
Victoria	608,790	602,380	1,211,170	98·95
Queensland	282,427	225,972	508,399	80·01
South Australia *	186,007	180,189	366,196	96·87
Tasmania	91,289	84,633	175,922	92·71
New Zealand	420,065	377,728	797,793	89·92
Mean Total for Australasia	2,445,367	2,213,490	4,658,857	90·52
1903.				
Western Australia	133,500	87,778	221,278	65·75
New South Wales	749,493	673,310	1,422,803	89·84
Victoria	605,160	603,720	1,208,880	99·76
Queensland	283,821	228,869	512,690	80·64
South Australia *	185,618	180,417	366,035	97·20
Tasmania	92,265	85,282	177,547	92·43
New Zealand	432,791	387,426	820,217	89·52
Mean Total for Australasia	2,482,648	2,246,802	4,729,450	90·50

* Including the Northern Territory.

No. 4.—*Births registered during 1902 and 1903.*

State or Colony.	Mean Population.	Total Births.			Birth Rate. Number of births per 1,000 of the mean population for the year.	Illegitimate Births Registered.			
		Males.	Females.	Total.		Males.	Females.	Total.	Percentage of total births.
1902.	No.	No.	No.	No.	No.	No.	No.	No.	
Western Australia	205,755	3,241	2,991	6,232	30·29	130	117	247	3·96
New South Wales	1,393,622	19,322	18,513	37,835	27·15	1,271	1,226	2,497	6·60
Victoria	1,211,170	15,583	14,878	30,461	25·15	*	*	1,677	5·51
Queensland ...	508,399	7,279	6,937	14,216	27·96	430	429	859	6·04
South Australia †	366,196	4,587	4,360	8,947	24·43	201	188	389	4·35
Tasmania ...	175,922	2,604	2,481	5,085	28·90	150	161	311	6·12
New Zealand ...	797,793	10,653	10,002	20,655	25·89	473	448	921	4·46
Total, Australasia	4,658,857	63,269	60,162	123,431	26·49	...	...	6,901	5·59
1903.									
Western Australia	221,278	3,433	3,266	6,699	30·27	168	147	315	4·70
New South Wales	1,422,803	18,377	17,589	35,966	25·28	1,193	1,220	2,413	6·71
Victoria	1,208,880	15,115	14,454	29,569	24·46	*	*	1,695	5·73
Queensland ...	512,690	6,427	6,194	12,621	24·62	418	439	857	6·79
South Australia †	366,035	4,484	4,024	8,508	23·24	177	177	354	4·16
Tasmania ...	177,547	2,570	2,510	5,080	28·61	157	128	285	5·61
New Zealand ...	820,217	11,217	10,612	21,829	26·61	502	492	994	4·55
Total, Australasia	4,729,450	61,623	58,649	120,272	25·43	...	...	6,913	5·75

* Sexes not distinguished. † Including the Northern Territory.

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No. 9.—*Deaths registered during 1902 and 1903.*

State or Colony.	Mean Population.	Total Deaths. Males.	Total Deaths. Females.	Total Deaths. Total.	Death Rate. Number of deaths per 1,000 of the mean population for the year.	Deaths under one year registered. Males.	Deaths under one year registered. Females.	Deaths under one year registered. Total.	Infantile Mortality. Percentage of deaths under one year to total births.	Percentage of deaths under one year to total deaths.	Deaths under five years registered. Males.	Deaths under five years registered. Females.	Deaths under five years registered. Total.	Percentage of deaths under five years to total deaths.
1902.	No.	No.	No.	No.	No.	No.	No.	No.	%	%	No.	No.	No.	%
Western Australia	205,755	1,832	991	2,823	13·72	496	389	885	14·20	31·35	633	510	1,143	40·49
New South Wales...	1,393,622	9,535	7,111	16,646	11·94	2,249	1,903	4,152	10·97	24·94	2,955	2,546	5,501	33·05
Victoria	1,211,170	9,152	7,025	16,177	13·36	1,793	1,515	3,308	10·86	20·45	2,348	2,013	4,361	26·96
Queensland ...	508,399	3,924	2,280	6,204	12·20	780	644	1,424	10·02	22·95	984	834	1,818	29·30
South Australia*...	366,196	2,389	1,925	4,314	11·78	468	373	841	9·40	19·49	703	553	1,256	29·11
Tasmania	175,922	1,044	870	1,914	10·88	222	180	402	7·91	21·00	276	224	500	26·12
New Zealand ...	797,793	4,890	3,485	8,375	10·50	952	760	1,712	8·29	20·44	1,231	1,059	2,290	27·34
Total, Australasia	4,568,857	32,766	23,687	56,453	12·12	6,960	5,764	12,724	10·31	22·54	9,130	7,739	16,869	29·88
1903.														
Western Australia	221,278	1,829	959	2,788	12·60	550	396	946	14·12	33·93	668	494	1,162	41·67
New South Wales...	1,422,803	9,428	7,069	16,497	11·59	2,170	1,799	3,969	11·04	24·06	2,890	2,496	5,386	32·65
Victoria	1,208,880	8,626	6,969	15,595	12·90	1,694	1,452	3,146	10·64	20·17	2,188	1,940	4,128	26·47
Queensland ...	512,690	3,951	2,395	6,346	12·38	817	696	1,513	11·99	23·84	1,109	972	2,081	32·79
South Australia*...	366,035	2,242	1,709	3,951	10·79	473	353	826	9·71	20·91	579	457	1,036	26·22
Tasmania	177,547	1,136	980	2,116	11·92	299	264	563	11·08	26·61	362	318	680	32·14
New Zealand ...	820,217	4,947	3,581	8,528	10·40	977	793	1,770	8·11	20·76	1,282	1,064	2,346	27·51
Total, Australasia	4,729,450	32,159	23,662	55,821	11·80	6,980	5,753	12,733	10·59	22·81	9,078	7,741	16,819	30·13

* Including the Northern Territory.

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No. 6.—*Marriages registered during 1902 and 1903.*

State or Colony.	Mean Population.	Marriages celebrated by Ministers of Religion.	Marriages celebrated by Registrars.	Total.	Marriage Rate. Number of Marriages per 1,000 of the mean population for the Year.	Percentage of Marriages performed by Registrars to total marriages.	Marriages of Minors. Males.	Females.	Total.	Percentage of Minors married to total number married. Males.	Females.	Persons.	Mark Signatures of Contracting Parties. Males.	Females.	Total.	Percentage of Mark Signatures to total number married. Males.	Females.	Persons.
1902.	No.	No.	No.	No.	No.	°/.	No.	No.	No.	°/.	°/.	°/.	No.	No.	No.	°/.	°/.	°/.
Western Australia	205,755	1,801	223	2,024	9·84	11·02	35	393	428	1·73	19·42	10·57	12	16	28	0·59	0·79	0·69
New South Wales	1,393,622	10,197	289	10,486	7·52	2·76	309	2,372	2,681	2·95	22·62	12·78	135	120	255	1·29	1·14	1·22
Victoria	1,211,170	8,355	122	8,477	7·00	1·44	155	1,294	1,449	1·83	15·26	8·55	57	46	103	0·67	0·54	0·61
Queensland ...	508,399	3,013	230	3,243	6·38	7·09	85	811	896	2·62	25·01	13·81	50	75	125	1·54	2·31	1·93
South Australia* ...	366,196	2,276	107	2,383	6·51	4·49	78	460	538	3·27	19·30	11·29	33	22	55	1·38	0·92	1·15
Tasmania	175,922	1,298	15	1,313	7·46	1·14	39	345	384	2·97	26·23	14·62	52	30	82	3·96	2·28	3·12
New Zealand .	797,793	5,338	1,056	6,394	8·01	16·51	89	1,061	1,150	1·39	16·59	8·99	16	28	44	0·25	0·44	0·34
Total, Australasia	4,658,857	32,278	2,042	34,320	7·37	5·95	790	6,736	7,526	2·30	19·63	10·96	355	337	692	1·03	0·98	1·01
1903.																		
Western Australia	221,278	1,849	215	2,064	9·33	10·42	26	410	436	1·26	19·86	10·56	10	21	31	0·48	1·02	0·75
New South Wales	1,422,803	9,449	310	9,759	6·86	3·18	320	2,249	2,569	3·28	23·05	13·16	113	101	214	1·16	1·03	1·10
Victoria	1,308,880	7,482	123	7,605	6·29	1·62	196	1,193	1,389	2·58	15·69	9·13	53	38	91	0·70	0·50	0·60
Queensland ...	512,690	2,733	200	2,933	5·72	6·82	87	724	811	2·97	24·68	13·83	50	59	109	1·70	2·01	1·86
South Australia* ...	366,085	2,158	114	2,272	6·21	5·02	60	436	496	2·64	19·19	10·92	35	25	60	1·54	1·10	1·32
Tasmania	177,547	1,335	9	1,344	7·57	0·67	45	304	349	3·35	22·62	12·98	43	21	64	3·20	1·56	2·38
New Zealand ...	820,217	5,675	1,073	6,748	8·23	15·90	109	1,080	1,189	1·62	16·00	8·81	26	42	68	0·39	0·62	0·50
Total, Australasia	4,729,450	30,681	2,044	32,725	6·92	6·25	843	6,396	7,239	2·58	19·54	11·06	330	307	637	1·01	0·94	0·97

*Including the Northern Territory.

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Sources of Revenue.	Western Australia.	New South Wales.	Victoria.	Queensland.	a South Australia.	b Tasmania.	Total Consolidated Revenues of Commonwealth States.
	£	£	£	£	£	£	£
TAXATION -							
Probate and Succession Duties	8,952	240,445	161,636		104,028	6,980	522,041
Other Stamp Duties	53,500	236,882	192,071	131,346	55,589	27,364	696,752
Land Tax	...	320,653	92,867		105,024	41,862	560,406
Income Tax		224,306	415,048	141,895	114,720	11,863	907,832
Dividend Tax	d 127,607			80,255	...	d 3,081	210,943
Other Taxation	31,188	122,946	88,561	62,192	19,580	14,251	338,718
Total Taxation	221,247	1,145,232	950,183	415,688	398,941	105,401	3,236,692
SPECIAL PUBLIC SERVICES—							
Railways and Tramways	1,508,023	4,197,789	3,033,596	1,245,914	1,086,758	232,744	11,394,824
Water Supply	30,048	261,628	40,840	...	114,685	...	447,201
Sewerage	.	147,391	..	...	..	.	147,391
Other			4,232	...	..	42,305	46,537
Total Public Services	1,628,071	4,606,808	3,078,668	1,245,914	1,201,443	275,049	12,035,953
LANDS—							
Sales	28,399	1,100,549	251,685	258,761	36,723	41,319	1,717,436
Rental c	162,501	770,142	104,577	351,519	123,127	30,609	1,542,475
Total Lands	190,900	1,870,691	356,262	610,280	159,850	71,928	3,259,911
INTEREST—							
On Loans, Local Bodies	...	12,226	135,307	76,525	...	...	224,058
On Public Balances	8,652	49,432	17,376	89,476	9,408	12,762	187,106
Total Interest	8,652	61,658	152,683	166,001	9,408	12,762	411,164
Surplus Commonwealth Revenue returned to State ...	1,255,641	3,053,133	2,105,450	905,235	578,929	264,702	8,163,090
Other Sources	325,727	794,709	311,373	183,347	182,972	4,821	1,802,949
Total Revenue	3,630,238	11,532,231	6,954,619	3,526,465	2,531,543	734,663	28,909,759

a Including the Northern Territory. b State Revenue for year ended 31st December, 1902. c Including Rental of Mining Lands. d Company Tax.

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No. 8.—*Expenditure of the Commonwealth States from Consolidated Revenue during the Year ended 30th June, 1903.*

Heads of Expenditure.	Western Australia.	New South Wales.	Victoria.	Queensland.	a South Australia.	b Tasmania.	Total Commonwealth.
	£	£	£	£	£	£	£
Interest, Sinking Fund, and Expenses on Public Debt	692,692	f 2,989,179	1,907,656	1,509,183	1,009,918	331,262	8,439,890
Railways and Tramways (Working Expenses)	1,275,565	2,948,554	1,849,989	861,749	643,871	173,151	7,752,879
Other Public Works	428,051	888,585	209,146	25,176	107,743	29,796	1,688,497
Mines	119,962	d 147,166	53,961	27,493	21,672	8,689	378,943
Police	130,308	415,999	264,422	172,913	84,109	37,806	1,105,557
Harbours, Rivers, Lights, Beacons, etc. ...	26,969	208,898	34,058	44,167	20,407	...	334,499
Water Supply and Sewerage	c	126,432	25,467	1,855	33,309	...	187,063
Quarantine	h	3,128	1,123	383	707	61	5,402
Education	120,305	899,918	660,774	317,366	178,059	70,867	2,247,289
Hospitals	88,794	194,790	318,111	138,377	62,068	30,245	1,722,431
Charitable Institutions	30,033	e 795,738			45,175	19,100	
All other Expenditure	609,084	2,085,010	1,435,253	619,144	g 434,751	149,707	5,332,949
Total Expenditure	3,521,763	11,703,397	6,759,960	3,717,806	2,641,789	850,684	29,195,399

a Including the Northern Territory. b State expenditure for year ended 31st December, 1903. c Included under "other Public Works." d Mines and Agriculture. e Including Old-age Pensions administration, £533,508. f Including Redemption of Public Debt. g Including £79,583 redemption of Public Debt. h Included under "Hospitals," etc.

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[illegible] Revenue collected by the Commonwealth Government in respect of each of the States during the Year ended 30th June, 1903.

Sources of Revenue.	Western Australia.	New South Wales.	Victoria.	Queensland.	South Australia.	Tasmania.	Total Revenue of Commonwealth Government.
	£	£	£	£	£	£	£
Customs	1,317,770	2,861,710	2,096,318	1,042,188	583,446	312,016	8,213,448
Excise	78,232	617,032	402,696	218,746	106,310	48,591	1,471,607
Post Office, Telegraph and Telephone	225,244	906,798	622,700	300,737	255,214	94,037	2,404,730
Defence	324	3,258	3,739	427	1,172	409	9,329
New Revenue	262	1,703	1,465	620	445	215	4,710
Miscellaneous	131	518	202	1,073	120	69	2,113
Total	1,621,963	4,391,019	3,127,120	1,563,791	946,707	455,337	12,105,937

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No. 10.—*Expenditure of the Commonwealth Government in respect of each of the States during the Year ended 30th June, 1903.*

Heads of Expenditure.	Western Australia.	New South Wales.	Victoria.	Queensland.	South Australia.	Tasmania.	Total Expenditure by Commonwealth Government.
	£	£	£	£	£	£	£
Department of Trade and Customs	34,740	70,438	64,770	66,198	25,832	10,644	272,622
Department of Defence	32,471	268,147	258,851	107,672	54,009	25,376	746,526
Postmaster General's Department	280,304	890,203	597,008	437,268	257,755	104,079	2,566,617
Refunds	...	10	28	5	...	...	43
New Expenditure	17,524	114,131	98,172	41,519	29,795	14,423	315,564
Surplus Revenue returned to the States ...	1,255,731	3,053,133	2,105,450	905,235	578,929	301,978	8,200,456
Total	1,620,770	4,396,062	3,124,279	1,557,897	946,320	456,500	12,101,828
Surplus Revenue due to the States on 30th June, 1903	2,134	* 4,914	641	5,416	3,790	* 882	6,185

* Amount due to Commonwealth.

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	of the Commonwealth (exclusive of Surplus returned).	Revenue collected by Commonwealth Government.	[illegible]	Total, Australasia.
Taxation	£	£	£	£
Customs	...	8,213,448	2,335,643	10,549,091
Excise	...	1,471,607	90,400	1,562,007
Probate and Succession Duties	522,011	...	118,003	640,044
Other Stamp Duties	696,752		237,172	933,924
Land Tax	5[illegible]		286,062	856,168
Income Tax	907,832	..	200,684	1,108,516
Dividend Tax	210,943	.	...	210,943
Other Taxation	338,718	.		338,718
Total Taxation	3,236,692	9,685,055	3,277,964	16,199,711
Special Public Services				
Railways and Tramways	11,394,824		1,982,551	13,377,375
Post Office	...	2,404,730	302,605	2,929,829
Telegraphs and Telephones	...		222,494	
Water Supply	447,201	...	4,231	451,432
Sewerage	147,391	...	..	147,391
Other	46,537		..	46,537
Total Public Services	12,035,953	2,404,730	2,511,881	16,952,564
Lands				
Sales	1,717,436	.	44,148	1,761,584
Rental	1,542,475	...	208,130	1,750,605
Total Lands	3,259,911	...	252,278	3,512,189
Interest				
On Loans, Local Bodies	224,058	..	57,713	281,771
On Public Balances	187,106	...	33,006	220,112
Total Interest	411,164		90,719	501,883
Other Sources	1,802,949	16,152	314,593	2,133,694
Total Revenue	20,746,669	12,105,937	6,447,435	39,300,041

* Year ended 31st March, 1903.

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No. 12.—*Australasian Expenditure from Consolidated Revenue during the Year ended 30th June, 1903.*

Heads of Expenditure.	Commonwealth.		New Zealand.*	Total, Australasia.
	Expenditure of States of Commonwealth.	Expenditure by Commonwealth Government (exclusive of Surplus returned to States).		
	£	£	£	£
Interest, Sinking Fund, and Expenses on Public Debt ...	8,439,890	...	1,900,979	10,340,869
Railways and Tramways (Working Expenses)	7,752,879	...	1,357,385	9,110,264
Other Public Works	1,688,497	...	...	1,688,497
Posts and Telegraphs	...	2,566,617	485,860	3,052,477
Mines	378,943	...	12,578	391,521
Customs	...	272,622	36,045	308,667
Defences	...	746,526	214,226	960,752
Police	1,105,557	...	123,804	1,229,361
Harbours, Rivers, Lights, Beacons, etc.	334,499	...	104,396	438,895
Water Supply and Sewerage	187,063	...	5,145	192,208
Quarantine	5,402	...	...	5,402
Education	2,247,289	...	566,568	2,813,857
Hospitals ... ... } Charitable Institutions ... ... }	1,722,431	...	109,071	1,831,502
All other Expenditure	5,332,949	315,607	1,297,962	6,946,518
Total Expenditure	29,195,399	3,901,372	†6,214,019	39,310,790

* Year ended 31st March, 1903. † Also, £200,000 transferred to Public Works Fund, which has been accounted for under Loan Expenditure (*see* Table 13).

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No. 13.—*Loan Expenditure, Year ended 30th June, 1903.*

Heads of Expenditure.	Western Australia.	New South Wales.	Victoria.	Queensland.	*a* South Australia.	*b* Tasmania.	*c* New Zealand.	Total, Australasia.
	£	£	£	£	£	£	£	£
Railways and Tramways	1,059,418	1,683,755	354,916	695,631	141,335	56,731	759,753	4,751,539
Telegraphs and Telephones	...	...	...	33,288	(*cr.* 402)	693	68,578	102,157
Roads and Bridges	...	75,679	...	*g* 203,140	200	55,687	300,617	635,323
Harbours, Rivers, and Lighthouses	138,422	2,014,565	...	1,532	27,640	16,597	*d* 13,581	2,212,337
Public Buildings	...	204,442	...	62,041	10,119	44,176	197,455	518,233
Defences	...	...	...	12,931	3,393	346	*e* 37,004	53,674
Water Supply... ... ... }	413,435	365,813	115,405	*h*	169,931	...	...	1,259,330
Sewerage ... ... }		188,768	...	...	5,978	...	...	
Immigration	928	...	...	10,901	...	...	142	11,971
Other Public Works or purposes ...	53,698	8,746	259,082	2,941	107,361	64,401	906,067	1,402,296
Total Loan Expenditure (exclusive of Redemptions) ...	1,665,901	4,541,768	729,403	1,022,405	465,555	238,631	*f* 2,283,197	10,946,860

a Including the Northern Territory. *b* Year ended 31st December, 1902. *c* Year ended 31st March, 1903. *d* Including Harbour Defences. *e* Contingents. *f* Including £200,000 transferred from Consolidated Revenue Fund. *g* Including Loans to Local Bodies, principally for Roads and Bridges and Water Conservation. *h* Included under "Roads and Bridges."

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No. 14.—*Loan Expenditure—Aggregate to 30th June, 1903.*

Heads of Expenditure.	Western Australia.	New South Wales.	Victoria.	Queensland.	a South Australia.	b Tasmania.	c Total, Australasia.
	£	£	£	£	£	£	£
Railways and Tramways	8,607,368	47,098,238	38,253,206	23,130,490	13,592,828	4,047,908	134,730,038
Telegraphs and Telephones	269,308	1,294,882	...	1,048,510	991,812	142,410	3,746,922
Roads and Bridges	142,538	1,608,807	106,259	e 4,141,740	1,464,658	2,176,572	9,640,574
Harbours, Rivers, and Lighthouses ...	1,973,633	9,313,740	611,059	2,597,385	1,371,752	440,857	16,308,426
Public Buildings	63,876	4,198,689	752,218	1,418,934	839,769	805,130	8,078,616
Defences	...	1,421,976	149,324	377,097	292,683	128,179	2,369,259
Water Supply	2,742,799	6,284,914	8,685,435	f	4,297,981	...	27,261,308
Sewerage		4,634,705	...	...	615,474	...	
Immigration	28,625	194,430	...	2,943,963	...	235,000	3,402,018
Other Public Works or purposes ...	1,269,709	771,150	d 2,369,301	1,695,016	2,793,395	850,727	9,749,298
Total Loan Expenditure (exclusive of Redemptions)	15,097,856	76,821,531	50,926,802	37,353,135	26,260,352	8,826,783	215,286,459

a Including the Northern Territory. b To 31st December, 1902. c Exclusive of New Zealand, for which Colony reliable information under this head is not available. d Including £1,129,112, Expenditure on Schools. e Including Loans to local bodies, principally for Roads and Bridges and Water Conservation. f Included under "Roads and Bridges."

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No. 15.—*Public Debt on 30th June, 1903.*

State or Colony.	Debentures.	Inscribed Stock.	Funded Stock.	Treasury Bills. For Public Works.	Treasury Bills. In aid of Revenue.	Treasury Bills. Total Treasury Bills.	Gross Indebtedness.	Accrued Sinking Fund.	Net Indebtedness.	Gross Indebtedness per head.	Net Indebtedness per head.
	£	£	£	£	£	£	£	£	£	£ s. d.	£ s. d.
Western Australia ...	221,500	15,405,798	...	...	...	...	15,627,298	655,069	14,972,229	69 13 4	66 14 11
New South Wales ...	8,367,950	51,877,550	10,240,861	4,979,000	2,227,626	7,206,626	77,692,987	775,208	76,917,779	54 15 11	54 5 0
Victoria	8,692,495	41,705,405	...	700,000	350,000	1,050,000	51,447,900	313,295	51,134,605	42 13 8	42 8 6
Queensland b ..	13,480,390	24,838,247	...	...	...	...	38,318,627	...	38,318,627	75 0 2	75 0 2
South Australia a ...	9,274,300	17,112,345	...	367,775	1,088,950	1,456,725	27,843,370	117,338	27,726,032	76 8 2	76 1 9
Tasmania b	3,102,300	6,126,663	...	...	...	.	9,228,963	206,257	9,022,706	52 0 1	50 16 10
New Zealand c ...	10,601,997	45,297,022	...	...	...	...	55,899,019	2,313,239	53,585,780	68 12 0	65 15 3
Total, Australasia	53,740,922	202,363,030	10,240,861	6,046,775	3,666,576	9,713,351	276,058,164	4,380,406	271,677,758	58 10 11	57 12 5

a Including the Northern Territory. b On 31st December, 1902. c On 31st March, 1903.

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No. 16.—*Due Dates of Public Debt Outstanding on 30th June, 1903.*

When Due.	Western Australia.	New South Wales.	Victoria.	a Queensland.	b South Australia.	a Tasmania.	c New Zealand.	Total, Australasia.
	£	£	£	£	£	£	£	£
Overdue	...	5,650	1,000	...	...	...	...	6,650
Due 1903	...	1,003,700	...	...	...	167,994	480,000	1,651,694
„ 1904	...	58,000	5,507,000	...	424,000	24,840	1,698,950	7,712,790
„ 1905	17,600	2,903,800	50,000	...	783,275	179,986	1,640,100	5,574,761
„ 1906	...	1,224,900	50,000	...	221,200	235,811	1,799,766	3,531,677
„ 1907	...	1,875,000	4,750,000	...	1,129,700	177,046	1,811,800	9,743,546
„ 1908	...	2,965,500	2,025,000	...	1,998,675	382,441	562,338	7,933,954
„ 1909	...	384,000	25,000	...	3,183,675	117,866	801,000	4,511,541
„ 1910	d 1,573,130	2,863,700	25,000	...	60,300	53,048	497,556	5,072,734
„ 1911	...	...	25,000	...	68,300	1,024,661	2,843	1,120,804
„ 1912	...	9,350,351	25,000	...	85,000	2,125	...	9,462,476
„ 1913	...	...	4,025,000	1,466,500	46,300	547,650	496,300	6,581,750
„ 1914	...	...	...	...	35,000	800,000	331,800	1,166,800
„ 1915	100	...	...	11,728,800	35,000	...	3,000	11,766,900
„ 1916	...	...	...	...	1,963,300	100	12,700	1,976,100
„ 1917	...	...	...	...	1,363,800	...	...	1,363,800
„ 1918	...	12,826,200	...	...	1,474,400	...	...	14,300,600
„ 1919	...	365,050	4,000,000	...	26,000	...	...	4,391,050
„ 1920	...	...	6,000,000	...	336,300	300,000	...	6,636,300
„ 1921	...	...	...	...	...	228,493	500,000	728,493
„ 1922	...	...	h 63,000	...	...	8,252	...	71,252
„ 1923	e 483,215	...	i 7,746,795	...	...	4,550	...	8,234,560
„ 1924	...	16,698,065	...	12,973,834	1,651,300	...	...	31,323,199
„ 1925	...	222,255	...	...	...	...	...	222,255
„ 1926	...	...	j 7,107,000	...	...	67,600	...	7,174,600
„ 1927	2,500,000	...	...	...	...	...	...	2,500,000
„ 1929	...	...	...	...	200,000	...	29,150,302	29,350,302
„ 1930	...	...	k 1,000,000	3,704,800	...	...	...	4,704,800

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„ 1931	*f* 1,876,000	...	...	...	...	...	...		1,876,000
„ 1932	...	...	*k* 297,700	...	...	...	...		297,700
„ 1933	...	9,686,300	...	...	...	...	...		9,686,300
„ 1934	993,353	..	...	...	...	...	...		993,353
„ 1935	*g* 6,880,000	12,500,000	...	...	*n* 1,560,400	...	...		20,940,400
„ 1936	*f* 1,100,000	...	...	...	*o* 3,354,800	...	...		4,454,800
„ 1939	...	...	...	...	2,719,800	...	...		2,719,800
„ 1940	...	...	...	...	...	4,906,500	6,161,167		11,067,667
„ 1945	...	...	...	2,000,000	...	...	9,512,997		11,512,997
„ 1947	...	...	...	4,498,693	...	...	...		4,498,693
„ 1949	...	...	*l* 5,528,471	...	...	...	...		5,528,471
„ 1950	...	...	...	946,000	...	...	...		946,000
„ 1951	...	...	...	1,000,000	...	...	...		1,000,000
Permanent	...	...	...	...	...	...	...		...
Interminable	...	530,190	...	...	...	...	...		530,190
Annual Payments	...	...	...	...	...	...	...		...
Annual Drawings	203,900	2,227,626	...	...	..	...	236,400		2,667,926
Indefinite	..	2,700	*m* 3,196,934	...	*p* 5,122,845	...	200,000		8,522,479
Total	15,627,298	77,692,987	51,447,900	38,318,627	27,843,370	9,228,963	55,899,019		276,058,164

a Amount outstanding on 31st December, 1902. *b.* Including the Northern Territory. *c* Amount outstanding on 31st March, 1903. *d* Of this amount £400,280 is redeemable at par at the option of the Government at any time within four years prior to this date, on 12 calendar months' notice being given. *e* Redeemable at par at the option of the Government at any time within 10 years prior to this date, on 12 calendar months' notice being given. *f* Redeemable at par at the option of the Government at any time within 20 years prior to this date, on 12 calendar months' notice being given. *g.* £4,500,000 redeemable at par at the option of the Government at any time within 20 years prior to this date, and £2,380,000 at any time within 15 years prior, 12 calendar months' notice to be given in either case. *h* Redeemable at par at the option of the Government 10 years prior to this date. *i* Of this amount £746,795 is redeemable at par at the option of the Government 10 years prior to this date. *j* £2,107,000 redeemable at par at the option of the Government 15 years prior to this date, and £5,000,000 redeemable five years prior. *k* Redeemable at par at the option of the Government nine years prior to this date. *l* Redeemable at par at the option of the Government 20 years prior to this date. *m* Redeemable at any time after 1917. *n* Redeemable at any time between 1st October, 1916, and 1st April, 1935, upon six months' notice being given. *o* £839,500 redeemable at any time between 1st January, 1916, and 1st January, 1936, upon six months' notice being given; £2,182,400 redeemable at any time between 1st April, 1917, and 1st April, 1936, upon six months' notice being given. *p* Redeemable on, or any time after, 1st January, 1916, upon six months' notice being given by the Government.

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No. 17.—*Rates of Interest payable on Loans Outstanding on 30th June, 1903.*

State or Colony.	Nominal amount of Loans overdue not bearing Interest.	Nominal amount of Loans bearing Interest at								Total.	Average rate.
		6 per cent.	5 per cent.	4½ per cent.	4 per cent.	3¾ per cent.	3½ per cent.	3¼ per cent.	3 per cent.		
	£	£	£	£	£	£	£	£	£	£	%
Western Australia ...	...	...	17,600	71,400	3,485,068	...	4,703,230	...	7,350,000	15,627,298	3·38
New South Wales ...	5,650	2,300	60,700	3,700	24,071,940	1,500,000	32,567,499	...	19,481,198	77,692,987	3·54
Victoria	1,000	...	...	5,000,000	23,310,795	...	12,800,000	250,000	10,086,105	51,447,900	3·72
Queensland *a* ...	...	...	...	...	21,384,300	...	11,535,634	...	5,398,693	38,318,627	3·71
South Australia *b* ...	...	468,900	290,000	...	16,302,400	...	4,819,725	...	5,962,345	27,843,370	3·74
Tasmania *a*	...	...	100	...	4,101,500	...	4,054,076	29,418	1,043,869	9,228,963	3·66
New Zealand *c* ...	500,000	55,200	557,400	52,900	34,504,352	349,000	10,367,170	...	9,512,997	55,899,019	3·72
Total, Australasia	506,650	526,400	925,800	5,128,000	127,160,355	6,552,230	76,144,104	279,418	58,835,207	276,058,164	3·65

a On 31st December, 1902. *b* Including the Northern Territory. *c* On 31st March, 1903.

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SHIPPING AND COMMERCE.

No. 18.—*Shipping, Imports, and Exports, 1903.*

State or Colony.	Shipping.				Imports.	Exports.		
	Entered.		Cleared.					
	No.	Tonnage.	No.	Tonnage.		Domestic Produce.	Other Produce.	Total.
					£	£	£	£
Western Australia	708	1,673,154	703	1,662,741	6,769,922	10,193,449	131,283	10,324,732
New South Wales	3,379	4,501,731	3,396	4,503,670	26,770,169	18,665,804	8,072,307	26,738,111
Victoria	2,204	3,409,288	2,263	3,448,566	17,859,171	14,940,024	4,767,044	19,707,068
Queensland	727	902,670	726	895,785	6,731,207	9,087,874	427,100	9,514,974
South Australia[a]	1,112	2,157,961	1,085	2,122,929	6,743,872	5,337,054	3,153,305	8,490,359
Tasmania	928	938,371	927	935,802	2,593,810	2,804,380	38,728	2,843,108
New Zealand	617	1,102,064	608	1,113,165	12,788,675	14,838,192	172,186	15,010,378

a Including Northern Territory.

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No. 19.—*Exports of Wool, the Produce of each State or Colony, 1903.*

State or Colony.	Export of Wool, Produce of State or Colony.				
	Washed and Scoured.		Greasy.		Total Value.
	Quantity.	Value.	Quantity.	Value.	
	lbs.	£	lbs.	£	£
Western Australia	405,261	27,017	12,501,804	416,726	443,743
New South Wales	39,641,996	2,944,035	148,012,404	5,600,100	8,544,135
Victoria	3,779,162	226,368	44,519,805	1,622,557	1,848,925
Queensland	19,016,088	1,308,373	15,712,735	559,301	1,867,674
South Australia *a*	2,540,153	147,223	36,757,780	1,179,467	1,326,690
Tasmania	72,128	2,389	4,809,355	171,700	174,089
New Zealand	36,496,250	1,161,997	118,632,131	2,879,277	4,041,274
Total, Australasia	101,951,038	5,817,402	380,946,014	12,429,128	18,246,530

a Including the Northern Territory.

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No. 20.—*Imports and Exports of Coin and Bullion, 1903.*

State or Colony.	Gold.		Silver.		Bronze.	Total Value.
	Bullion, etc.	Coin.	Bullion, etc.	Coin.	Coin.	
IMPORTS.	£	£	£	£	£	£
Western Australia	...	...	12	...	80	92
New South Wales	2,737,543	615,092	751	17,553	4,732	3,375,671
Victoria	1,057,803	10,000	1,656	17,346	1,000	1,087,805
Queensland	31,349	88,000	84	4,021	355	123,809
South Australia *a*	10	289,200	72	4,250	100	293,632
Tasmania	...	31,125	...	6,180	255	37,560
New Zealand	...	613,270	86	95,096	4,350	712,802
EXPORTS.						
Western Australia	4,061,767	4,556,192	23,701	933	...	8,642,593
New South Wales	1,295,137	3,618,341	21,048	13,833	733	4,949,092
Victoria	716,234	4,704,740	319	7,660	367	5,429,320
Queensland	2,887,476	120,270	286	2,600	8	3,010,640
South Australia *a*	99,916	212,431	568,837	4,900	40	886,124
Tasmania	125,825	...	...	...	...	125,825
New Zealand	2,038,075	36,375	91,497	2,072	5	2,168,024
EXCESS OF EXPORTS OVER IMPORTS OF COIN AND BULLION.						
Western Australia	4,061,767	4,556,192	23,689	933	*b* 80	8,642,501
New South Wales	*b* 1,442,406	3,003,249	20,297	*b* 3,720	*b* 3,999	1,573,421
Victoria	*b* 341,569	4,694,740	*b* 1,337	*b* 9,686	*b* 633	4,341,515
Queensland	2,856,127	32,270	202	*b* 1,421	*b* 347	2,886,831
South Australia *a*	99,916	*b* 76,769	568,765	650	*b* 60	592,502
Tasmania	125,825	*b* 31,125	...	*b* 6,180	*b* 255	88,265
New Zealand	2,038,075	*b* 576,895	91,411	*b* 93,024	*b* 4,345	1,455,222
Total, Australasia	7,397,735	11,601,662	703,027	*b* 112,448	*b* 9,719	19,580,257

a Including the Northern Territory. *b* Excess of imports over exports.

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Land Settlement, Agriculture, and Live Stock.

No. 21.—*Agriculture—Area under Crop during Season 1903-1904.*

Crop.	Western Australia.	New South Wales.	Victoria.	Queensland.	*a* South Australia.	Tasmania.	New Zealand.	Total, Australasia.
	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.
Wheat	137,946	1,561,111	1,968,599	138,096	1,711,174	49,414	230,346	5,796,686
Oats	14,568	51,621	433,638	2,808	57,558	60,663	391,640	1,012,496
Barley	3,609	10,057	47,760	22,881	28,697	8,084	34,681	155,769
Maize	163	226,834	11,810	133,099	...	...	11,156	383,062
Beans, Pease, etc.	593	794	8,960	...	6,461	11,906	12,974	41,688
Other Cereals	445	7,124	2,021	364	...	839	1,176	11,969
Potatoes	1,823	20,851	48,930	6,732	8,616	29,160	31,778	147,890
Other Root Crops	237	765	6,754	3,054	...	6,360	537,861	555,031
Hay	109,002	496,017	733,353	78,393	370,152	66,947	77,167	1,931,031
Green Forage	672	77,093	33,165	26,576	19,241	3,100	211,408	371,255
Grass Seed	...	...	2,749	275	...	5,364	58,940	67,328
Sugar Cane { Productive	...	10,405	...	60,375	...	...	...	70,780
Sugar Cane { Unproductive	...	9,814	..	51,141	...	...	...	60,599
Vines { Productive	2,707	7,897	25,657	1,486	22,617	...	749	61,113
Vines { Unproductive	617	1,043	2,856	583	...	...	...	5,099
Tobacco	...	407	129	772	...	...	...	1,308
Hops	...	...	214	...	...	639	810	1,663
Orchards	7,938	48,832	51,357	4,430	18,725	14,134	26,792	208,250
Market Gardens	*b* 3,315	8,754	8,455		9,964	1,685	3,869	
All other Crops	117	6,521	2,662	35,524	3,619	1,316	*c* 93,679	143,438
Total Land under Crop	283,752	2,545,940	3,389,069	566,589	2,256,824	259,611	1,725,026	11,026,811

a Including the Northern Territory. *b* Including kitchen gardens. *c* Including private gardens and plantations.

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No. 22.—*Agriculture—Total Yields of Principal Crops for Season 1903–1904.*

Crop.	Western Australia.	New South Wales.	Victoria.	Queensland.	a South Australia.	Tasmania.	New Zealand.	Total, Australasia.
Wheat ... ... (bushels)	1,876,252	27,334,141	28,525,579	2,436,799	13,209,465	767,398	7,891,654	82,041,288
Oats ... ... „	258,503	1,252,156	13,434,952	70,713	902,936	1,621,950	15,107,237	32,648,447
Barley ... ... „	53,227	174,147	1,218,003	510,557	487,920	212,459	1,160,504	3,816,817
Maize ... ... „	2,487	6,836,740	904,239	1,923,623	...	...	530,291	10,197,380
Beans, Pease, etc. ... ... „	7,342	37,480	213,735	...	121,580	254,950	389,833	1,024,920
Other Cereals ... ... „	3,970	111,909	29,586	7,804	...	12,944	19,992	186,205
Potatoes ... ... (tons)	4,542	56,743	167,736	17,649	31,415	171,298	208,787	658,170
Other Root Crops ... ... „	1,085	4,119	56,402	13,412	...	92,827	b	c 167,845
Hay ... ... „	121,934	816,810	1,233,063	136,117	479,723	115,513	b	c 2,903,160
Sugar Cane ... ... „	...	227,511	...	823,875	...	...	...	1,051,386
Wine ... ... (gallons)	137,871	1,086,820	2,551,150	38,558	2,345,270	...	...	6,159,669

a Including the Northern Territory. b No information available. c Exclusive of New Zealand.

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No. 23.—*Agriculture—Average Yield per Acre of Principal Crops for Season 1903-1904.*

Crop.	Western Australia.	New South Wales.	Victoria.	Queensland.	a South Australia.	Tasmania.	New Zealand.	Total, Australasia.
Wheat ... ... (bushels per acre)	13·60	17·51	14·49	17·65	7·72	15·53	34·26	14·15
Oats ... ... " "	17·74	24·26	30·98	25·18	15·69	26·74	38·57	32·25
Barley ... ... " "	14·75	17·32	25·50	22·31	17·00	26·28	33·46	24·50
Maize ... ... " "	15·26	30·14	76·57	14·45	...	...	47·53	26·62
Beans, Pease, etc. " "	12·38	47·20	23·85	...	18·82	21·41	30·05	24·59
Other Cereals ... " "	8·92	15·71	14·64	21·44	...	15·43	17·00	15·56
Potatoes ... ... (tons per acre)	2·49	2·72	3·43	2·62	3·65	5·87	6·57	4·45
Other Root Crops " "	4·58	5·38	8·35	4·39	...	14·60	*b*	*c* 9·78
Sugar Cane ... " "	...	21·87	...	13·65	...	...	...	14·85
Hay ... ... " "	1·17	1·65	1·68	1·74	1·30	1·73	*b*	*c* 1·57

a Including the Northern Territory. *b* No information available. *c* Exclusive of New Zealand.

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Year.	Western Australia.	New South Wales.	Victoria.	Queensland.	a South Australia.	Tasmania.	New Zealand.	Total, Australasia.
	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.
1894-5	21,433	647,483	1,373,668	27,991	1,576,950	52,028	148,575	3,848,128
1895-6	23,241	596,684	1,412,736	12,950	1,410,955	64,652	245,441	3,766,659
1896-7	31,489	866,112	1,580,613	34,670	1,693,045	74,516	258,608	4,539,053
1897-8	38,706	993,350	1,657,450	57,788	1,522,668	85,905	315,801	4,671,668
1898-9	75,032	1,319,503	2,154,163	46,219	1,788,770	85,287	399,034	5,868,008
1899-1900	84,462	1,426,166	2,165,693	52,527	1,821,137	64,328	269,749	5,884,062
1900-1	74,308	1,530,609	2,017,321	79,304	1,913,247	51,825	206,465	5,873,079
1901-2	94,709	1,392,070	1,754,417	87,232	1,743,452	44,084	163,462	5,279,426
1902-3	92,398	1,279,760	1,994,271	1,880	1,746,842	40,898	194,355	5,350,404
1903-4	137,946	1,561,111	1,968,599	138,096	1,711,174	49,414	230,346	5,796,686
Total for ten years...	673,724	11,612,848	18,078,931	538,657	16,928,240	612,937	2,431,836	50,877,173

a Including Northern Territory.

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No. 25.—*Agriculture—Total Yields of Wheat for each of the Seasons, 1894-5 to 1903-4.*

Year.	Western Australia.	New South Wales.	Victoria.	Queensland.	a South Australia.	Tasmania.	New Zealand.	Total, Australasia.
	bushels.	bushels.	bushels.	bushels.	bushels.	bushels.	bushels.	bushels.
1894-5	170,351	7,041,378	11,445,878	545,185	7,781,223	872,000	3,613,037	31,469,052
1895-6	188,077	5,195,312	5,669,174	123,630	5,929,300	1,164,855	6,843,768	25,114,116
1896-7	243,928	8,853,445	7,091,029	601,254	2,804,493	1,286,330	5,926,523	26,807,002
1897-8	408,595	10,560,111	10,580,217	1,009,293	4,014,852	1,668,341	5,670,017	33,911,426
1898-9	870,909	9,276,216	19,581,304	607,012	8,778,900	2,303,512	13,073,416	54,491,269
1899-1900	966,601	13,604,166	15,237,948	614,414	8,453,135	1,101,303	8,581,898	48,559,465
1900-1	774,653	16,173,771	17,847,321	1,194,088	11,253,148	1,110,421	6,527,154	54,880,556
1901-2	956,886	14,808,705	12,127,382	1,692,222	8,012,762	963,662	4,046,589	42,608,208
1902-3	985,559	1,585,097	2,569,364	6,165	6,354,912	876,971	7,457,915	19,835,983
1903-4	1,876,252	27,334,141	28,525,579	2,436,799	13,209,465	767,398	7,891,654	82,041,288
Total for ten years ...	7,441,811	114,432,342	130,675,196	8,830,062	76,592,190	12,114,793	69,631,971	419,718,365

a Including Northern Territory.

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Year.	Western Australia.	New South Wales.	Victoria.	Queensland.	a South Australia.	Tasmania.	New Zealand.	Total, Australasia.
	bushels.	bushels.	bushels.	bushels.	bushels	bushels.	bushels.	bushels.
1894–5	7·95	10·88	8·33	19·48	4·93	16·76	24·32	8·19
1895–6	8·09	8·71	4·01	9·55	4·20	18·02	27·88	6·67
1896–7	7·75	10·22	4·49	17·34	1·66	17·26	22·92	5·91
1897–8	10·56	10·63	6·38	17·47	2·64	19·42	17·95	7·26
1898–9	11·61	7·03	9·09	13·13	4·91	27·00	32·76	9·29
1899–1900	11·44	9·54	7·04	11·70	4·64	17·12	31·81	8·25
1900–1	10·42	10·57	8·85	15·06	5·88	21·43	31·61	9·34
1901–2	10·10	10·64	6·91	19·40	4·60	21·86	24·76	8·07
1902–3	10·67	1·24	1·29	3·28	3·64	21·44	38·38	3·71
1903–4	13·60	17·51	14·49	17·65	7·72	15·53	34·26	14·15
Total for ten years ...	11·03	9·85	7·23	16·39	4·52	19·76	28·63	8·25

a Including Northern Territory.

No. 27.—*Live Stock, 1903.*

Live Stock.	Western Australia. a	New South Wales. a	Victoria. b	Queensland. a	South Australia. c d	Tasmania. e	New Zealand.	Total, Australasia.
Horses	82,747	458,014	392,237	401,984	192,411	35,541	f 298,714	1,861,648
Cattle	497,617	1,880,578	1,602,384	2,481,717	536,580	185,938	f 1,593,547	8,778,361
Sheep	2,600,633	28,656,501	10,841,790	8,392,044	5,350,358	1,597,053	g 18,954,553	76,392,832
Pigs	50,209	221,592	350,370	117,553	89,331	56,538	f 226,591	1,112,184

a Number on 31st December, 1903. b Number on 31st March, 1901. c Including the Northern Territory. d Number on 31st March, 1904.
e Number on 1st March, 1904. f Number in November, 1903. g Number in April, 1903.

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No. 28.—*Dairying during Year ended 31st December, 1903.*

Dairy Produce.	Western Australia.	New South Wales.	Victoria.	Queensland.	South Australia.	Tasmania.	Total.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
Butter	351,885	38,727,107	46,685,727	7,717,325	5,995,756	854,442	100,332,242
Cheese	8,039	4,748,176	5,681,515	1,479,651	940,584	533,709	13,391,674
Bacon and Ham	178,557	7,864,771	12,504,851	4,145,900	*a*	401,417	*b* 25,095,496

a No information available. *b* Exclusive of South Australia.

No. 29.—*Land Settlement on 31st December, 1903.*

Particulars.	Western Australia.	New South Wales.	Victoria.	Queensland.	South Australia. *a*	Tasmania.	New Zealand. *b*	Total, Australasia.
	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.
Area absolutely or conditionally Alienated	10,548,481	48,851,524	24,526,255	16,991,127	14,149,171	5,040,413	23,857,633	143,[illegible]
Area Leased or Licensed	135,597,269	127,901,840	9,516,372	277,569,396	189,531,955	1,581,937	16,648,650	758,347,4[illegible]
Area neither Alienated nor Leased	478,443,050	22,094,636	22,203,133	133,277,557	374,680,474	10,155,650	*c* 26,355,157	1,067,209,657
Total Area ...	624,588,800	198,848,000	56,245,760	427,838,080	578,361,600	16,778,000	*d* 66,861,440	1,969,521,680

a Including the Northern Territory. *b* On 31st March, 1904. *c* Including 9,000,000 acres native lands. *d* Excluding the Cook group and other islands added to the colony by proclamation dated 10th June, 1901.

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MINERAL PRODUCTION.

No. 30.—*Value of Minerals Produced, 1903.*

Minerals.	Western Australia.	New South Wales.	Victoria.	Queensland.	South Australia. a	Tasmania.	New Zealand.	Total, Australasia.
	£	£	£	£	£	£	£	£
Gold	8,770,720	1,080,029	3,262,282	2,839,813	90,031	254,403	2,037,831	18,335,109
Silver	19,153	113,755	4,898	65,538	804		91,497	
Silver-lead, etc.	...	1,387,648	...	b 43,639	1,267	887,933	...	3,954,377
Copper	56,541	523,945	500	285,122	472,014		123	
Tin	55,890	150,208	2,165	243,149	10,772	238,883	180	701,247
Coal	69,128	2,319,660	43,645	164,798	...	20,916	762,858	3,381,005
Other Minerals	266	409,511	60,996	44,037	9,038	34,553	638,165	1,196,566
Total	8,971,698	5,984,756	3,374,486	3,686,096	583,926	1,436,688	3,530,654	27,568,304

a Including the Northern Territory. b Lead.

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POST AND TELEGRAPHS.

No. 31.—*Offices, Revenue and Expenditure, 1903.*

State or Colony.	Number of Post Offices open on 31st December, 1903.	Revenue for Year ended 31st December, 1903.			Expenditure for Year ended 31st December, 1903.
		Postal and Telegraph Branches.	Telephone Branch.	Total.	
		£	£	£	£
Western Australia	218	190,999	30,324	221,323	277,021
New South Wales	1,708	807,600	105,002	912,602	884,963
Victoria	1,646	555,325	86,600	641,925	582,520
Queensland	1,325	275,197	27,321	302,518	425,568
South Australia *a*	706	241,240	23,209	264,449	240,987
Tasmania	429	92,701	8,910	101,611	100,232
New Zealand *b*	1,844	509,743	71,028	580,771	526,747
Total, Australasia	7,876	2,672,805	352,394	3,025,199	3,038,038

a Including the Northern Territory. *b* Year ended 31st March, 1904.

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Particulars.	States of the Commonwealth of Australia.						New Zealand.
	Western Australia.	New South Wales.	Victoria.	Queensland.	a South Australia.	Tasmania.	
LETTERS AND POSTCARDS.							
Inland (posted)	10,345,152	77,814,607	91,983,321	17,791,939	17,722,642	6,384,168	55,990,530
Interstate received	2,493,184	5,049,596	5,811,251	2,259,417	1,939,757	1,117,049	b 1,499,172
Received from other places	603,141	2,552,105	1,707,639	893,388	318,732	223,084	2,537,410
Interstate despatched	1,851,319	5,029,303	4,974,832	3,299,295	1,870,540	1,727,921	c 1,298,364
Despatched to other places	493,981	2,292,600	1,445,484		343,109	459,469	1,815,444
Total	15,786,777	92,238,211	105,922,527	24,244,039	22,194,780	9,911,691	63,140,920
NEWSPAPERS.							
Inland (posted)	3,854,469	27,725,960	26,669,343	8,683,904	3,529,590	4,659,597	11,915,606
Interstate received	3,215,046	3,416,720	2,432,224	2,071,033	1,234,027	1,797,486	b 1,692,327
Received from other places	1,055,771	1,615,640	d 3,418,625	1,421,911	685,685	305,240	3,896,584
Interstate despatched	797,919	3,648,260	7,304,600	1,333,778	786,967	342,624	c 790,146
Despatched to other places	247,998	1,494,260	1,300,602		148,405	96,786	1,401,771
Total	9,171,203	37,900,840	41,125,394	13,510,626	6,374,684	7,201,733	19,696,434
PARCELS AND PACKAGES.							
Inland (posted)	2,993,996	10,912,529	10,536,969	5,875,962	937,359	1,818,920	17,307,819
Interstate received	698,485	972,787	1,185,556	906,422	767,152	830,878	b 474,755
Received from other places	207,503	563,239	e	562,986	8[illegible]4	184,623	1,590,954
Interstate despatched	492,763	1,266,395	1,858,317	1,096,068	231,[illegible]56	147,793	c 179,929
Despatched to other places	90,866	590,471	467,467		47,331	36,403	391,906
Total	4,483,613	16,305,421	14,058,309	8,441,438	1,984,812	3,018,567	19,895,363

a Including the Northern Territory. b Received from States of the Commonwealth of Australia. c Despatched to States of the Commonwealth of Australia. d Including parcels and packages. e See note d.

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RAILWAYS.

No. 33.—*Government Railways, 1903.*

State or Colony.	Miles open at end of year.	Miles being constructed.	Average miles open during year.	Train miles run.	Cost of construction and equipment.	Gross Receipts during Year.				Working expenses during year.	Locomotives working.	Vehicles of all kinds.	
						Coaching.	Goods.	Miscellaneous.	Total.			Passenger.	Goods and Live Stock.
	No.	No.	No.	No.	£	£	£	£	£	£	No.	No.	No.
Western Australia *a*	1,516	40	1,434	4,611,315	8,141,782	380,721	1,103,052	69,712	1,553,485	1,247,873	316	264	5,694
New South Wales *a*	3,139	312	3,074	11,548,338	41,654,977	1,370,544	1,907,950	36,399	3,314,893	2,266,299	559	1,115	12,499
Victoria *a*	3,376	48	3,336	10,286,272	40,965,849	1,525,340	1,454,770	66,748	3,046,858	2,032,087	553	1,189	10,257
Queensland *b* ...	2,997	90	2,913	4,605,735	21,314,072	344,333	786,853	124,841	1,256,027	832,440	345	450	7,369
South Australia *a c* ...	1,882	3	1,882	3,800,773	14,575,852	344,950	710,522	32,438	1,087,910	637,323	352	442	6,155
Tasmania *b*	462	...	469	931,716	3,883,729	93,969	121,129	32,585	247,683	166,355	75	138	1,645
New Zealand *d* ...	2,328	175	2,305	5,685,399	20,692,911	814,811	1,293,169	72,661	2,180,641	1,438,724	377	809	13,433
Total, Australasia	15,700	668	15,413	41,469,548	151,129,172	4,874,668	7,377,445	435,384	12,687,497	8,621,101	2,577	4,407	57,052

a Year ended 30th June, 1903. *b* Year ended 31st December, 1903. *c* Including the Northern Territory. *d* Year ended 31st March, 1904.

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NO. 54.—*Probate and Bankruptcy, 1903.*

State or Colony.	Probates and Letters of Administration.		Bankruptcies.				
			Petitions.			Liabilities.	Assets.
	Estates.	Value.	Compulsory.	Voluntary.	Total.		
	No.	£	No.	No.	No.	£	£
Western Australia	399	703,071	18	61	79	34,952	10,631
New South Wales	2,767	7,179,882	117	366	483	230,429	123,037
Victoria	3,884	6,074,077	29	475	504	184,957	71,887
Queensland	710	2,617,348	22	352	374	70,916	14,817
South Australia *a*	919	2,464,011	4	20	24	15,221	14,633
Tasmania	256	253,167	5	72	77	16,259	5,312
New Zealand	1,385	3,091,340	40	164	204	96,866	46,767
Total, Australasia	10,320	22,382,896	235	1,510	1,745	649,600	287,084

a Including the Northern Territory.

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No. 35.—*Cases tried by Magistrates, 1903.*

State or Colony.	Offences against the person.	Offences against property.	Drunkenness.	Other Offences.	Total.
	No.	No.	No.	No.	No.
Western Australia	797	2,146	3,572	10,690	17,205
New South Wales	*b* 3,985	6,249	21,837	29,323	61,394
Victoria	1,936	3,968	12,630	29,941	48,475
Queensland	1,504	2,206	7,190	8,112	19,012
South Australia *a*	338	664	2,340	3,088	6,430
Tasmania	284	553	526	4,612	5,975
New Zealand	1,303	3,138	8,872	17,440	*c* 30,753
Total, Australasia	10,147	18,924	56,967	103,206	189,244

a Including the Northern Territory. *b* Including 341 cases "against person and property." *c* Exclusive of 545 trials of Maoris, details of which are not available.

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State or Colony.	Offences against the person.	Offences against property.	Drunkenness.	Other Offences.	Total.
	No.	No.	No.	No.	No.
Western Australia	358	1,321	2,348	8,534	12,561
New South Wales	*b* 1,528	3,747	21,732	24,372	51,379
Victoria	980	2,431	8,494	25,341	37,246
Queensland	821	1,224	7,130	6,620	15,795
South Australia *a*	167	428	2,296	2,235	5,126
Tasmania	137	371	511	3,858	4,877
New Zealand	644	1,767	8,774	13,580	*c* 24,765
Total, Australasia	4,635	11,289	51,285	84,540	151,749

a Including the Northern Territory. *b* Including twelve cases "against person and property." *c* Exclusive of 421 Maori convictions, details of which are not available.

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No. 37.—*Superior Courts and Gaols, 1903.*

State or Colony.	Superior Courts, 1903.				Gaols and Penal Establishments.
	Cases.	Convictions.	Acquittals.	Cases not settled or not proceeded with.	Prisoners in Confinement on 31st December, 1903.
	No.	No.	No.	No.	No.
Western Australia	323	197	80	46	*f* 730
New South Wales	1,432	895	460	77	*g* 1,822
Victoria	696	475	221	...	978
Queensland	483	269	88	126	508
South Australia *a*	130	100	30	...	299
Tasmania	67	51	11	5	110
New Zealand	*b c* 554	*d* 380	*e* 126	48	739
Total, Australasia	3,685	2,367	1,016	302	5,186

a Including the Northern Territory. *b* Including 56 sent from Magistrate's Court for sentence. *c* Including 29 Maoris. *d* Including 16 Maoris. *e* Including 13 Maoris. *f* Including 218 Aborigines, also 13 others not under sentence. *g* Including 6 Debtors.

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[illegible], including of Hospitals, on 31st December, 1903.

State or Colony.	Inmates on 31st December, 1903.		
	Under 15 Years.	15 Years and over.	Total.
	No.	No.	No.
Western Australia	447	500	947
New South Wales	759	4,412	5,171
Victoria	1,687	3,307	4,994
Queensland	a	a	2,339
South Australia b	121	1,505	1,626
Tasmania	48	400	448
New Zealand	232	1,106	1,338
Total, Australasia	a	a	16,683

a Information not available. b Including the Northern Territory.

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EDUCATION.

No. 39.—*Schools and Teaching Staffs, 1903.*

State or Colony.	Number of Schools.			Number of Teachers in Schools.								
				State.			Private.			Total.		
	State.	Private.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Western Australia	270	92	362	271	468	739	37	309	346	308	777	1,085
New South Wales	2,862	856	3,718	3,068	2,472	5,540	621	2,820	3,441	3,689	5,292	8,981
Victoria *a*	1,988	798	2,786	1,990	3,047	5,037	407	1,962	2,369	2,397	5,009	7,406
Queensland	1,023	181	1,204	1,136	1,241	2,377	133	608	741	1,269	1,849	3,118
South Australia *b*	717	205	922	403	919	1,322	175	479	654	578	1,398	1,976
Tasmania	346	177	523	249	442	691	*c*	*c*	*c*	*d* 249	*d* 442	*d* 691
New Zealand	1,741	313	2,054	1,417	2,278	3,695	*c*	*c*	1,013		*c*	4,708
Total, Australasia ...	8,947	2,622	11,569	8,534	10,867	19,401	*c*	*c*	*d*8,564	*c*	*c*	27,965

a, Year ended 30th June, 1903. *b*, Including the Northern Territory. *c*, Particulars not available. *d*, Exclusive of Private School Teachers in Tasmania.

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State or Colony.	Net Enrolment of Scholars.									Average Attendance during Year. j		
	In State Schools.			In Private Schools.			In all Schools.			State Schools.	Private Schools.	All Schools.
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.			
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Western Australia ...	a12,750	a11,517	a24 267	a2,810	a3,947	a6,757	a15,560	a15,464	a31,024	20,283	5,618	25,901
New South Wales ...	b111,682	99,876	211,558	26,468	33,005	59,473	138,150	132,881	271,031	152,830	48,197	201,027
Victoria i	c	c	224,178	c	c	42,695	c		266,873	150,268	h42,695	192,963
Queensland	46,952	43,073	90,025	d6,647	d9,074	d15,721	53,599	52,147	105,746	69,759	13,359	83,118
South Australia e ...	c	c	62,036	4,436	4,894	9,330	c	c	71,366	42,800	h9,330	52,130
Tasmania	d13,003	d11,592	d24,595	d4,804	d4,039	d8,843	d17,807	d15,631	d33,438	13,866	d8,843	22,709
New Zealand	f70,205	f64,543	f134,748	c	c	g16,866	c	c	151,614	f134,748	16,866	151,614
Total, Australasia ...	c	c	771,407	c	c	159,685	c	c	931,092	584,554	144,908	729,462

a Enrolment last school day of 1903. b Last quarter of the year. c Information not available. d Gross enrolment. e Including the Northern Territory. f Average weekly roll numbers. g Average attendance. h Net enrolment. i Year ended 30th June, 1903.
j In using the figures given under this heading, special reference should be made to the preceding footnotes.

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No. 41.—*Cost of State Education, 1903.*

State or Colony.	Paid by Government.					Paid by Parents.		
	Maintenance.	Rent.	Buildings.		Total.	Fees received by State.	Fees retained by Teachers.	Total Fees.
			Revenue.	Loan.				
	£	£	£	£	£	£	£	£
Western Australia	125,853	269	38,671	...	164,793	...	...	...
New South Wales	760,589	1,359	43,173	56,423	861,544	82,906	...	82,906
Victoria *b*	674,076	3,848	24,787	10,734	713,445	...	6,277	6,277
Queensland	256,325	...	9,006	...	265,331	...	...	...
South Australia *c*	145,745	1,872	2,825	8,960	159,422	854	...	854
Tasmania	60,515	323	1,763	3,873	66,474	12,472	145	12,617
New Zealand	441,178	...	94,991		536,169	...	...	...
Total, Australasia	2,464,281	7,671	295,226		2,767,178	96,232	6,422	102,654

a Technical School, Training College, and Evening Schools. *b* Year ended 30th June, 1903. *c* Including the Northern Territory.

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ADDENDA.

FAUNA.

ernard H. Woodward, F.G.S., C.M.Z.S, etc., Director of the Western Australian Museum.)

ıe following lists show the additions to our knowledge of the ıuna obtained since 1902, when the "Natural History Notes" ·epared :—

NDA TO LIST OF MAMMALS IN "NATURAL HISTORY NOTES."

ORDER II.—MARSUPIALIA.

SUB-ORDER II.—DIPROTODONTIA.

SUB-FAMILY II.—MACROPODIDÆ.

·ogale rothschildi [Thos.], "Rock Wallaby," N.W.
)o. sp. nov. do. Middle Is., Albany.

ORDER VII.—RODENTIA.

SUB-ORDER II.—SIMPLICIDENTATA.

tunneyi [Thos.], "La Grange Bay," N.W., C. J. T. Tunney, 1899.

IDA TO LIST OF BIRDS IN "NATURAL HISTORY NOTES."

ORDER I.—ACCIPITRES: "BIRDS OF PREY."

SUB-FAMILY.—FALCONINÆ: "FALCONS."

hneis unicolor [Milligan], "Western Kestrel," C.

ORDER II.—PASSERIFORMES: "PERCHING BIRDS."

SUB-FAMILY.—TIMELIINÆ: "BABBLERS."

ıthiza robustirostris [Milligan], "Thick-billed Tit," C.
)o. tenuirostris [Zietz], C.
)o. pallida [Milligan], "Pallid Tit," S.W.
ıcola cauta* [Gld.], "Red-rumped Ground Wren," S.W.

Family.—Paridæ: "Tit Mice."

Family.—Alandidæ: "Larks."

ırafra javanica woodwardi [Milligan], Bush-lark, Onslow, N.

Family.—Laniidæ: "Crow-shrikes."

·phila castaneiventris [Milligan], "Chestnut-bellied Tit-mouse," C.
Gymnorhina longirostris, Long-billed Magpie.

Family.—Meliphagidæ: "Honey Eaters."

SUB-FAMILY.—MELIPHAGINÆ.

ıtis novæ-norciæ [Milligan], "Western White-eared Honey Eater," W.
orhina garrula* [Lath], "Noisy Minah," S.W.

e birds had not been noticed in W.A. before. The others are new to science.

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ADDENDA TO LIST OF FISH IN "NATURAL HISTORY NOTES.

Acanthistuis serratus [C.N.], S.W.
Aracana lenticularis [Rch.], S.W.
Arripis trutta [Forst.], S.W.
Aulopus purpurissatus [Rich.], S.W.
Batrachus diemensis [Rch.], S.W.
Caranx armatus [C.N.], S.W.
Do. speciosus [Forsk.], S.W.
Centrogenys vaigiensis [Q. & G.], N.W.
Chelidonichthys kumu [L. & G.], S.W.
Chilodactylus nigricans [Rch.], S.W.
Chroysophrys australis [Gth.], S.W.
Congrogadus subducens [Rch.], S.W.
Coris auricularis [C.N.], S.W.
Elops saurus [L.], S.W.
Epinephelus fasciatus [Forsk.], S.W.
Galaxias attenuatus (?) [Jemyns.], S.W.
Heteroscarus filamentosus [Cast.], S.W.
Holocenthrus rubrum [Forsk.], S.W.
Hypoplectrodes nigrorubra [C.N.], S.W.
Hypsypops microlepsis [Gthr.], S.W.
Lethrinus opercularis [C.N.], S.W.
Lutianus chrysotænia [Blk.], S.W.
Monacanthus brownii [Rch.], S.W.
Do. chinensis [Bl.], S.W.
Do. granulatus [White], S.W.
Do. guttulatus [Mcl.], N.W.
Do. hippocrepis [Q. & G.], S.W.
Myxus elongatus [Gthr.], S.W.
Neosebastes panda [Rich.], S.W.
Olisthops cyanomelas [Rich.], S.W.
Opthalmolepis lineolatus [C.N.], S.W.
Pentaceropsis recurvirostris [Rch.], S.W.
Pentapus vitta [Q. & G.], S.W.
Pristipoma hasta [Bloch.], S.W.
Pseudolabrus punctulatus [Gthr.], S.W.
Pterygotrigla polyommata [Rch.], S.W.
Scatophagus multifasciatus [Rch.], S.W.
Scolopsis bimaculatus [C.N.], S.W.
Scorpis georgianus [C.N.], S.W.
Synancidium horridum [L.], S.W.
Tephræops tephræops [Rich.], S.W.
Tetraodon sceleratus [Forst.], S.W.
Thalassoma aneitense [Gthr.], S.W.
Trachinotus baillonii [C.N.], SW.

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Year.	Imports during the Year ended 31st December.				Exports during the year ended 31st December of Flour and Wheat.	Excess of Imports over Exports.	Quantity of Wheat produced in Western Australia during Season ended February.	Total Wheat available from Importation and Home production.
	Flour Imported.		Wheat Imported.	Total Imports of Flour and Wheat expressed in bushels of Wheat.				
	Quantity.	Equivalent in Wheat.			Equivalent in bushels of Wheat.			
	Tons.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1896	14,889	744,450	181,846	926,296	*Nil.*	926,296	188,077	1,114,373
1897	15,983	799,150	212,750	1,011,900	*Nil.*	1,011,900	243,928	1,255,828
1898	14,866	743,300	291,571	1,034,871	*Nil.*	1,034,871	408,595	1,443,466
1899	10,945	547,250	78,038	625,288	1,600	623,688	870,909	1,494,597
1900	9,994	499,700	76,985	576,685	3,449	573,236	966,600	1,539,836
1901	13,460	673,000	214,410	887,410	2,513	884,897	774,653	1,659,550
1902	14,377	718,850	86,088	804,938	600	804,338	956,886	1,761,224
1903	15,242	762,100	182,135	944,235	628	943,607	985,559	1,929,166
1904	10,668	533,395	16,463	549,858	34,348	515,510	1,876,252	2,391,762
1905	*5,536	*276,790	*20,250	*297,040	2,603	*244,437	2,013,237	*2,257,674

* Estimated.

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Breadstuffs Statistics, 1896-1906—*continued.*

Year.	Quantities of Wheat required for Seed and available for Food.		Mean Population.	Wheat per Head of Mean Population.			
					Requirements, Production, Deficiency.		
	Estimated Quantity of Seed required for the following Season.	Net Quantity of Wheat available for Food.		Quantity available for Food.	Gross requirements of Wheat for Seed and Food.	Home production of Wheat.	Deficiency.
	Bushels.	Bushels.	No.	Bushels per Head.	Bushels per Head.	Bushels per Head.	Bushels per Head.
1896	116,000	998,373	122,696	8·1	9·1	1·5	7·6
1897	137,333	1,118,495	155,563	7·2	8·1	1·6	6·5
1898	172,500	1,270,266	168,999	7·5	8·5	2·4	6·1
1899	173,565	1,321,032	168,528	7·8	8·9	5·2	3·7
1900	186,099	1,353,737	176,905	7·7	8·7	5·5	3·2
1901	199,223	1,460,327	188,313	7·8	8·8	4·1	4·7
1902	203,085	1,558,139	205,755	7·6	8·6	4·7	3·9
1903	250,000	1,679,166	221,278	7·6	8·7	4·5	4·2
1904	292,882	2,098,880	236,516	8·9	10·1	7·9	2·2
1905	295,000	1,962,674	*250,000	7·9	9·0	8·1	0·9

* Estimated.

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[illegible] may be roughly estimated at 340,000 bushels.

The total amount of wheat required by this State during 1906 will thus be 2,433,500 bushels. According to the preliminary wheat returns for the present season, it appears that the aggregate wheat yield for the whole State is approximately 2,095,426 bushels, thus leaving only 338,074 bushels of wheat, or its equivalent in flour, that it will be necessary to obtain from outside sources. This may be summarised as follows:—

ESTIMATES FOR 1906.

Mean population	265,000
Consumption per head of wheat for food	7·9 bushels
Total food requirements	2,093,500 „
Seed requirements	340,000 „
Gross requirements for food and seed	2,433,500 bushels
Preliminary returns of wheat production for season ended February, 1906	2,095,426 „
Estimated requirements from outside sources	338,074 bushels

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